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Noone, B. M., Kimes, S. E., Mattila, A. S., & Wirtz, J. (2009). *Perceived service encounter pace and customer satisfaction: An empirical study of restaurant experiences* [Electronic version]. Retrieved [insert date], from Cornell University, SHA School site: <http://scholarship.sha.cornell.edu/articles/852>

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Perceived Service Encounter Pace and Customer Satisfaction: An Empirical Study of Restaurant Experiences

Abstract

Purpose- Restaurant operators can process a greater number of customers and increase revenues by reducing service encounter duration during high demand periods. Actions taken to reduce duration may be experienced by customers as an increase in the pace of the service encounter. While achieving a reduction in duration may be appealing from a revenue perspective, will customers' perceptions of the resulting pace of the service encounter negatively impact their satisfaction? The aim of this paper is to propose that, in the context of restaurant experiences that are hedonic and extended in nature, the overall relationship between perceived service encounter pace and satisfaction follows an inverted U-shape.

Design/methodology/approach- Respondents were asked to recall a recent (i.e. within the last three weeks) restaurant experience, write a description of that experience, and then complete scales that measured their perceptions of pace and satisfaction with the experience.

Findings- The relationship between perceived pace and satisfaction has an inverted U-shape. This holds both at the level of the overall service encounter and by service stage within the encounter. The effect of perceived pace on satisfaction is moderated by service stage, with a greater tolerance of a faster pace during the post-process stage than during the pre-process or in-process stages.

Practical implications- The results of this study have implications for the application of revenue management strategies for duration control. Management need to consider the negative effect that service encounter pace can have on consumer satisfaction. Service stage should also be factored into strategy development for duration control.

Originality/value- This paper extends the wait time literature, demonstrating that as the perceived pace of the service encounter increases, satisfaction increases, but only up to a point, beyond which it decreases as perceived pace continues to increase.

Keywords

restaurants, customer satisfaction, customer services quality

Disciplines

Hospitality Administration and Management | Marketing

Comments

Required Publisher Statement

© Emerald. Final version published as: Noone, B. M., Kimes, S. E., Mattila, A. S., & Wirtz, J. (2009). Perceived service encounter pace and customer satisfaction: An empirical study of restaurant experiences. *Journal of Service Management*, 20(4), 380-403. Reprinted with permission. All rights reserved.

Perceived Service Encounter Pace and Customer Satisfaction: An Empirical Study of Restaurant Experiences

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Introduction

The goal of revenue management is to maximize revenue using variable pricing and duration controls. Revenue management has traditionally been applied in service settings where services are sold to the consumer for a fixed amount of time as, for example, in the case of hotels (Hanks *et al.*, 1992; Kimes, 1989) and car rental (Carroll and Grimes, 1995; Geraghty and Johnson, 1997). There has been a move towards the application of revenue management in other service settings where the length of customer use of the service is not set in advance, for example, health care facilities and restaurants (Kimes, 2000; Kimes *et al.*, 1998; Kimes and Wirtz, 2003; Wirtz and Kimes, 2007). In these non-traditional settings, where service encounter duration is typically unpredictable, a potential goal of revenue management is control of the duration of the encounter so that overall firm revenue is maximized. Many service providers view this control as one of minimizing the service encounter duration so that they can process more customers and generate more revenue during high demand periods. While these outcomes are appealing, the notion of reducing service encounter duration raises concerns in terms of its potential impact on customer satisfaction (Wirtz *et al.*, 2003).

There have been a number of methods suggested in the operations management literature for reducing actual service encounter duration including, for example, improving service process and workstation design, reducing set-up times and cross training of employees (Davis and Maggard, 1994; Sheu and Babbar, 1996). Actions taken by service providers to reduce service encounter duration, such as decreasing the time between steps in the service delivery process, may be perceived by the customer as an increase in the pace of the encounter. Pace and duration represent two separate, but closely related, dimensions of time. Duration refers to how long situations, activities, or events last, the amount of time devoted to a task or activity (Lee, 1999; Lee and Liebenau, 2000; Linz, 1998; Zerubavel, 1981). Pace, on the other hand, refers to tempo or rate of activity (Lauer, 1981; Levine, 1988; Moore, 1963). Pace is typically related to the degree to which time is filled or unfilled (Owen, 1991). Filled time is time, which has a great deal of activity taking place within it; unfilled (or empty) time has little happening. Flaherty (1991) argues that time seems to move slowly during periods when time is unfilled (e.g. while people

wait without anything to do). In their study of dining experiences, Ward and Martens (2000) found that, while consumers sometimes expressed concern with time in terms of duration (e.g. for a restaurant experience: the length of time between arrival, having an order taken and the appearance of the first part of the meal on the table), evaluative judgments of service were also based on their feelings with regard to pace, for example, avoiding feeling rushed or the feeling that the pace is too slow. Therefore, before pursuing the goal of shortening the service encounter, it is important that service providers understand how consumers perceive and react to service encounter pace.

In this study, we empirically test the pace-satisfaction relationship in the context of restaurant experiences. This type of service experience was deemed appropriate for this study as it represents a service setting in which revenue management is applied to manage duration since the length of customer use of the service is not set in advance. Therefore, the notion of reducing duration to maximize revenue is an attractive strategy. Furthermore, we focus on restaurant experiences that are extended and hedonic in nature. Price *et al.* (1995) differentiate extended from brief service encounters, defining brief service encounters as typically lasting less than 10 min (e.g. customer interaction with a bank teller or tailor), while extended service encounters extend over longer periods of time, often lasting more than 30 min (e.g. customer interaction with a waiter or river guide)[1]. In terms of a hedonic experience, we are concerned with restaurant experiences that are purchased and consumed for their ability to provide pleasure rather than for their utilitarian value (Dhar and Wertenbroch, 2000).

We propose that, in the context of hedonic, extended restaurant experiences, the overall relationship between perceived service encounter pace and satisfaction follows an inverted U-shape. In other words, we are suggesting that perceived pace can be experienced along a continuum, from very slow to very fast, with satisfaction maximized when the pace falls into the middle of the continuum. Given that a slow perceived pace typically manifests itself in unfilled, or wait, time, we can expect, based on prior research on wait time (Baker and Cameron, 1996; Bitran *et al.*, 2008; Chebat and Filiatrault, 1993; Hui *et al.*, 1998; Hui and Tse, 1996; Katz *et al.*, 1991; Pruyn and Smidts, 1998; Tom and Lucey, 1997), a negative relationship between perceived pace and customer satisfaction at the slow end of the

pace continuum. If revenue is to be maximized, it would be expected that service operators would seek to avoid a slow pace and the associated unwarranted wait time. Speeding up slow service encounters that have undesirable waits would increase customer satisfaction while at the same time enhance customer throughput during periods of peak demand. However, increasing pace and moving towards a service encounter that is potentially too fast may have a detrimental impact on customer satisfaction. Therefore, the primary interest of this paper lies in empirically testing the proposed shape of the relationship between perceived pace and satisfaction beyond the slow end of the pace continuum.

We also examine the moderating effect of service stage on consumers' reactions to pace. The service encounter has been described as consisting of three stages: pre-process, in-process and post-process (Dubé-Rioux *et al.*, 1989). Studies in relation to service delays have shown that the stage in which a delay occurs within a service encounter effects customer evaluations of service (Dubé *et al.*, 1991; Dubé-Rioux *et al.*, 1989; Hui *et al.*, 1998). We extend this research by examining the impact of service stage on the perceived pace-satisfaction relationship. An understanding of potential differences in customer sensitivity to perceived pace across different service stages within the service encounter could serve to inform practical management decisions regarding when, during the encounter, to employ practices to shorten the experience without resulting in customer dissatisfaction.

The structure of this paper is as follows. First, we review the literature relevant to our research hypotheses. We then present a description of our research methodology and empirical results. We conclude with a discussion and managerial implications.

Background literature

Dimensions of time

Dimensions of time have been studied across a number of domains, from the time dimensions of work organizations, to psychological time across life stages and the study of time in relation to human physical activity and family resource management. Dimensions of time include flexibility, linearity, pace (or rate), punctuality, scheduling, duration (or allocation), separation, scarcity, urgency, synchronization,

sequencing, and present and future time perspectives (Ballard and Seibold, 2004; Lauer, 1981; Moore, 1963; Owen, 1991). The two dimensions of time that are relevant to this study are pace and duration (Bengtsson and Söderholm, 2002; Lauer, 1981; Owen, 1991). While pace and duration represent two separate dimensions of time, they are also very closely connected (Meyer-Sahling, 2007), with duration dependent on pace (Schriber and Gutek, 1987). For example, a slower pace typically extends the duration of the service encounter. That is, a slow pace of service, resulting in a lot of unfilled wait time, will extend the duration of the encounter.

Research has shown that consumers think about the temporal aspect of the service encounter in terms of both duration and pace (Ward and Martens, 2000). The duration dimension of time has received much attention in the services literature, specifically the examination of wait time (Baker and Cameron, 1996; Bitran *et al.*, 2008; Chebat and Filiatrault, 1993; Hui *et al.*, 1998; Hui and Tse, 1996). Prior research indicates a negative relationship between wait time and customers' evaluations of service (Dubé-Rioux *et al.*, 1989; Houston *et al.*, 1998; Taylor, 1994). This negative relationship between wait time and customer satisfaction has been established across a number of service contexts including a supermarket (Tom and Lucey, 1997), a bank (Katz *et al.*, 1991), an outpatient clinic (Pruyn and Smidts, 1998), and fast food restaurants (Davis and Heineke, 1998; Davis and Maggard, 1994; Davis and Vollmann, 1990). Given the nature of the relationship between pace and duration, findings regarding customer reaction to waiting for service yield insights into customer reaction to a slow pace. However, there is a lack of empirical evidence regarding the nature of the perceived pace-satisfaction relationship beyond the slow end of the pace continuum. From a revenue management perspective, an understanding of how customers will react as pace increases is key to effectively implementing procedures for shortening the service encounter. Is there a danger of negatively impacting customer satisfaction if the customer perceives the pace of the encounter to be too fast? In the following section, we propose a theoretical framework to explain the nature of the relationship between perceived pace and satisfaction across the pace continuum. While we expect a negative customer reaction to a slow pace, slow pace constitutes a fundamental component of the pace continuum and is therefore represented in the framework below.

The impact of perceived pace on satisfaction

Most human behavior, including consumption of services, is intrinsically pleasure seeking (Babin *et al.*, 1994; Holbrook and Hirschman, 1982). The service experience is thus evaluated not only based on utility but also based on affective gratification (Hightower *et al.*, 2002; Kempf, 1999). For example, in service environments such as restaurants, and other entertainment and leisure oriented service environments, customers may not want a fast-paced service experience. On the contrary, they might want to maximize pleasure, with a slower pace extending the encounter. In this study, we rely on the optimal arousal theory to explain the relationship between perceived pace and satisfaction.

Optimal arousal theory postulates that for each stimulus characteristic, there is an optimal level that is most preferred (Berlyne, 1967, 1971; McClelland *et al.*, 1953; Steenkamp and Baumgartner, 1992). The development of a systematic understanding of optimal experiences goes back to Wilhelm Wundt (Berlyne, 1974), who showed that as the intensity of the perceived stimulus increases, so does the extent to which the people find the perception pleasant. However, the pleasantness increases only up to a point. Thereafter pleasantness decreases again. The inverted U-curve has been demonstrated with several independent variables including arousal, novelty, uncertainty, discrepancy from adaptation level, informativeness and complexity (Teigen, 1987; Vitterso *et al.*, 2001). The Wundt curve indicates an inverted relationship between attributes and liking, and it has been supported in various areas of marketing and consumer behavior (Anand and Holbrook, 1986; Caldwell and Hibbert, 2002; Sanbonmatsu and Kardes, 1988; Spangenberg *et al.*, 1996). For example, recent research demonstrates the inverted-U relationship for co-branding and partner congruity (Walchli, 2007), mood and behavioral consequences (Andrade, 2005) and internet experience and trust (Aiken and Boush, 2006). Moreover, prior research in crowding suggests that the relationship between perceived crowding and satisfaction has an inverted U-shape (Eroglu *et al.*, 2005; Michon *et al.*, 2005). In other words, perceptions of extremely uncrowded and extremely crowded environments lead to lower satisfaction.

In this study, we build on the inverted-U hypothesis and apply it to explain the relationship between perceived pace and satisfaction in the context of extended hedonic restaurant experiences. Given

the nature of the relationship between pace and duration, we expect that, consistent with research on wait time, a slow perceived pace will lead to feelings of discontent as the consumer is waiting for the next step in the service delivery process. We propose that a pace that is perceived as too fast will also result in decreased satisfaction. Under such conditions, the consumer is unable to linger and savor the experience as the perceived pace works against such hedonic objectives. In other words, consumers' needs are not met, thus resulting in reduced satisfaction (Barbeau, 1985; Spreng *et al.*, 1996; Spreng and Olshavsky, 1993; Wirtz and Mattila, 2001). Relying on the inverted-U hypothesis (Berlyne, 1967), we thus propose that a moderate pace is preferred to a fast or a slow pace. In other words, we are suggesting the existence of two polarities, satisfaction being maximized when perceived pace falls into the middle of the continuum. When this is the case, the consumer is able to relax and enjoy the experience, with no cause for concern regarding when the next phase or stage of the experience is going to take place. Accordingly, we propose the following:

H1. In the context of extended hedonic service encounters, the relationship between perceived service encounter pace and satisfaction follows an inverted U-shape. Specifically, when customers perceive that the pace of a service encounter is either very fast or very slow, these perceptions negatively affect their satisfaction with the encounter.

Service stage, perceived pace and satisfaction

Dubé-Rioux *et al.* (1989) propose that the service encounter is comprised of three stages: a pre-process stage where preliminaries occur, such as checking-into a hotel; an in-process stage where the main purpose of the service encounter is accomplished, such as consuming food/drink in a restaurant; and, the post-process stage, composed of those activities necessary to the termination of the encounter, such as paying for purchases in a store (Hui *et al.*, 1998). Prior research on the duration dimension of time has examined the interacting effect of service stage and service delays on consumers' reactions to waiting (Dubé *et al.*, 1991; Dubé-Rioux *et al.*, 1989; Hui *et al.*, 1998). Dubé-Rioux *et al.* (1989) found, in the context of a restaurant visit, that subjects were more upset when a delay occurred during the pre-process

or post-process stages of the service encounter than when a delay occurred during the in-process stage, even though the delay was of the same length in each stage. Findings later obtained using a classroom setting were consistent with these results (Dubé *et al.*, 1991). Conversely, Hui *et al.* (1998) found no significant difference between affective responses to waiting when a delay occurred during the pre-process stage or the in-process stage of the service encounter. However, they suggested that the insignificant effect may have been attributable to the novelty of online course registration, the context of their study.

In the three aforementioned studies, Lewin's (1943) field theory was used as the theoretical framework to explain the moderating effect of service stage on customers' reactions to waiting. In this study, we also draw on field theory in the context of the pace dimension of time, using it to explain the moderating role of service stage in the perceived pace-satisfaction relationship. Field theory was developed in the socio-psychological literature as a means of explaining individual behavior, cognition and feelings in terms of the psychological forces acting upon the individual at a given time. The foundation of field theory is that all behavior is determined by both the person and their environment. The person and the environment together comprise, what Lewin terms, the life space. According to Lewin (1943), there may be barriers in the life space that create resistance to goal attainment, and that these barriers may be social, physical or psychological. For example, in the context of children's curiosity and exploration, a child's opportunity to explore the items in a store (i.e. to attain the goal of exploration) depends on the degree of the parent's prohibitions and the child's persistence to test this barrier (Chak, 2002).

Given that the service process integral to hedonic experiences such as eating in a restaurant or a spa visit, can be conceptualized as progression toward a goal (Hui *et al.*, 1998), field theory suggests that a barrier, such as a slow pace occurring during the pre-process stage of a service encounter (i.e. further from the goal state), should be experienced as more unpleasant by an individual than a slow pace occurring during the in-process stage (i.e. closer to the goal state) (Dubé *et al.*, 1991). Based on this, we

predict that customers may be more amenable to a faster pace during the pre-process, rather than the in-process, stage of the service encounter. In the pre-process stage a fast pace would facilitate the psychological forces driving the individual toward the goal state, while, in the in-process stage, the individual is already in the goal region and the psychological forces operating on the individual have eased. Once in the goal region, the objective, in terms of a hedonic dining experience is to savor and enjoy the meal.

When it comes to the post-process stage, the consumer's goals for the encounter have been attained, and the consumer, perhaps already striving for another goal, is motivated to terminate the activity. As a consequence, the consumer will become upset if the termination of the process is blocked (e.g. by a slow pace) (Karsten, 1976). Therefore, we predict that the customer may be more amenable to a faster pace during the post-process stage than during the in-process stage of the service encounter. A faster pace during the post-process stage will enable the customer to terminate the encounter when the consumer's goals for the encounter have been attained.

Therefore, consistent with field theory, we propose the following:

H2. Service stage moderates the relationship between perceived pace and service stage satisfaction. Specifically, customers react more favorably to a faster pace during the pre-process and post-process stages of the service encounter than during the in-process stage.

Method

The recall approach was used to examine the relationship between customer perceptions of pace and their satisfaction with restaurant experiences. The recall approach was deemed appropriate as it enabled data collection on experiences of all intensity (Zeelenberg and Pieters, 2004) and did not limit subject responses to anticipated reactions and emotional responses (Roseman *et al.*, 1990). Actual information processing is different from their recall or memory of processing (Gardial *et al.*, 1994). However, a significant amount of consumer decisions are either totally memory-based or are combination

of available and memory information regardless of the accuracy of the memory information (Alba *et al.*, 1990).

We used a self-administered questionnaire, consisting of two parts (Figure 1). In Part One, subjects were asked to think about a recent restaurant experience (either lunch or dinner) in any one of the following types of restaurants: casual, upscale casual or fine dining. To ensure that respondents focused on the service encounter as defined for the purpose of the study, a definition of a restaurant encounter was provided[2]. A description of each restaurant type, including the average check per person and examples of popular chain restaurants by restaurant type, was also provided to ensure that participants checked the appropriate restaurant type on the questionnaire.

To enhance recall, subjects were asked to write a description of the experience before completing the question set (Ellsworth and Smith, 1988a, b; Roseman *et al.*, 1990; Smith and Ellsworth, 1985). Writing an account of an experience serves to refresh the memory of subjects, enabling them to give more valid answers to the items in a questionnaire (Mohr and Bitner, 1995).

For the purpose of creating variability in the response data, three versions of the questionnaire were generated. The sole difference between the three versions was that they required recall of a restaurant experience, which corresponded to a different pace condition. Version One required recall of a moderately paced experience. Version Two required recall of a meal experience with one or more instances of a slow pace, and Version Three required recall of a meal experience with one or more instances of a fast pace. In the latter two conditions, care was taken not to frame “slow” and “fast” as necessarily negative conditions. Specifically, in both conditions subjects were instructed that fast (slow) could be either “a good or a bad thing.” It should be noted here that, while our primary interest lies in the perceived pace-satisfaction relationship beyond the slow end of the continuum (as it is what happens to satisfaction as perceived pace increases that is relevant to revenue management), we included the slow condition to allow us to fully test the theorized inverted-U relationship between perceived pace and satisfaction.

An equal number of each version of the questionnaire was distributed. In order to minimize respondent attrition, respondents were instructed to default to recalling any recent dining experience in the event that they were unable to recall the condition specified in the version that they received. Following their description of the experience, subjects were asked a number of general questions in relation to their recalled experience including their reason for dining (social, convenience or business), number of people in their party, recency of the dining experience, number of prior dining experiences in the restaurant, wait time before seating and the restaurant environment (e.g. volume of customers, volume/tone of background music).

In Part Two of the questionnaire, subjects were asked to complete the measures for perceived pace and satisfaction. Given that our hypotheses included the moderating effect of service stage on the relationship between perceived service encounter pace and satisfaction, this part of the questionnaire was divided into four sections. In each of the first three sections respondents were required to complete scales in relation to a specific stage of the meal experience, namely, the pre-process stage in Section 1, the in-process stage in Section 2 and the post-process stage in Section 3. The description used for each service stage was largely consistent with previous research (Dubé-Rioux *et al.*, 1989). It could be argued that customers do not naturally use this type of classification of service stages when thinking about service encounters, but the interview data from an exploratory qualitative study conducted by the authors prior to this study revealed that consumers tend to naturally disaggregate the encounter into these three stages or components. Refer to Appendix 1 for the definitions of service stages used in the study.

At the beginning of each of the three sections our description of the relevant stage of service encounter was provided. The purpose of providing this information was to prime the respondent's memory and to aid recall of experiences specific to each individual stage. Finally, the fourth section included a number of scales to measure respondents' overall evaluation of the service encounter.

Measures

Measures for perceived pace and satisfaction were included in all four sections of Part Two of the questionnaire. Customer perceptions of pace were measured for the overall service encounter and for each

stage of the encounter (i.e. pre-process, in-process and post-process) using a single-item, seven-point scale: How would you describe the pace of the meal [stage] (1=extremely slow, 7=extremely fast). Satisfaction was also measured for the overall service encounter and for each stage of the using Westbrook and Oliver's (1981) six-item, seven-point bipolar scale [Cronbach's $\alpha=0.99$ (overall service encounter); 0.98 (pre-process); 0.99 (in-process) and 0.98 (post-process)].

The questionnaire was pre-tested and revised before its final administration. Following the pre-test, a number of changes were made to the layout of the questionnaire to facilitate ease of completion.

Sample

A convenience sample of 580 respondents was recruited from a number of diverse sources, including members of a craft association, a subset of an undergraduate student parents' mailing list for a university located in the northeastern USA and employees of a clinical research organization. Respondents who had not dined in a sit-down restaurant during the previous three weeks were excluded from the survey.

Questionnaires were distributed to participants by mail, with a self-addressed envelope enclosed for return. A drawing, comprising of gift certificates for a range of different values and a number of service outlets, was used to provide an incentive to subjects to complete the questionnaire. A total of 228 questionnaires were returned (42.2 percent). Ten were discarded because the time period since the recalled experience exceeded the cutoff point of three weeks. Given that the focus of this paper is on hedonic service experiences, we excluded dining experiences that respondents classified as convenience or business and focused solely on experiences that were classified as social in nature. This yielded a final number of usable surveys of 151.

Results

While the primary purpose of asking respondents to write a description of their recalled restaurant experience was to enhance recall and enable respondents to give more valid responses to survey items, the

detail with which respondents' described their dining experiences (see Appendix 2 for examples of respondents' descriptions) served to provide some preliminary insights into customer reactions to pace. Given that an understanding of how customers react to a fast pace is key to effectively implementing revenue management practices for shortening the service encounter, we focus here on the recurring feelings and themes that emerged from respondents' descriptions of dining experiences when the pace of the experience was perceived as fast.

First, there were a number of negative feelings that respondents associated with a fast pace. Descriptions of recalled dining experiences included phrases such as: "I felt rushed", "We were hurried along" and "we felt watched". A recurring theme throughout respondents' descriptions of dining experiences was that a fast pace can work against hedonic objectives such as lingering and savoring the dining experience. Consider the following example:

After we ordered, dishes were brought so rapidly that there was a problem finding space on the table for them. Everything was around us at once, without time to determine what was what. The pace did not encourage savoring each dish and discussing it.

Another theme that emerged is that the behavior of service employees can foster negative reactions to pace. The following vignette is evidence of this:

The waitress returned to the table frequently and seemed pressured to check in on our meal – while bouncing between several of her tables. We felt pressured to eat quickly and her repeated presence was a distraction.

When describing their dining experiences, respondents tended to naturally disaggregate the experience into the three stages represented in this study. In terms of the impact of service stage on respondent's reactions to pace, a recurrent pattern that emerged was a somewhat unfavorable reaction to a fast pace during the pre-process stage. Two themes underpinned respondents' negative reactions: unfamiliarity and indecision. Unfamiliarity pertains to a lack of familiarity with the service environment and service provider offerings. For example, some respondents indicated that they needed more time at the beginning of the encounter due to unfamiliarity with the menu. Others indicated that a fast pace hindered their

ability to familiarize themselves with, and absorb, a novel service environment. Indecision, on the other hand, refers to the individual's own inability to make decisions regarding choice of service offerings.

Driven by indecision, some respondents expressed feeling rushed. For example, one respondent wrote:

[Our] server came immediately. We gave our drink order. I could not decide what to have. [I] wanted something other than my usual choice. [The] server came and hovered at the table trying to “help” me decide.

These insights from the qualitative data provide some preliminary evidence that a fast pace is not always desirable in the context of hedonic dining experiences. They also serve to yield some light on the underlying reasons for a negative customer reaction to fast-paced dining experiences. The results of the empirical test of the hypotheses advanced in this paper are presented in the next section.

Hypothesis testing

Polynomial regression was used to test for the hypothesized inverted U-shape relationship between perceived pace and satisfaction. Because of their potential to influence outcomes (Cheng, 2005; Fu and Parks, 2001; Jones *et al.*, 2002), the following were initially entered as control variables in all regression analyses:

- restaurant type (casual, upscale casual, fine dining);
- meal type (lunch, dinner);
- gender;
- age
- number of people in the party.

Meal type, gender and number of people in the party were insignificant ($p > 0.05$) in all regressions and were dropped from subsequent analyses. Restaurant type and age varied in significance across regressions. This will be addressed in the presentation of regression results below.

We tested the relationship between overall perceived pace and satisfaction, perceived pre-process pace and satisfaction, perceived in-process pace and satisfaction; and perceived post-process pace and

satisfaction using the following procedure. First, we regressed satisfaction on the linear, quadratic and cubic terms for the perceived pace variable. The linear pace term was centered and the higher order terms were created from the centered term to reduce potential multicollinearity (Aiken and West, 1991). In all regressions the cubic term for pace was found to be insignificant ($p>0.05$) and was dropped from the analysis. In contrast, the quadratic pace term was significant in all regression equations ($p<0.001$), and a test of the difference between the R^2 for the quadratic model and the linear model was also significant ($p<0.001$), providing support for the inclusion of the quadratic pace term. The regression results are reported in Table I.

In terms of the control variables, satisfaction ratings were significantly higher ($p<0.05$) for fine dining than for casual or upscale casual restaurants at the level of the overall service encounter and for the pre-process and in-process stages of the service encounter. For the post-process stage, there was no significant difference in satisfaction ratings by restaurant type. These findings suggest that, overall, restaurant experiences are evaluated more positively as the standard of service and product offering increases. With regard to age, satisfaction ratings were significantly lower ($p<0.01$) for the 35-44 age group, when compared to the 18-24 age group, at the level of the overall service encounter and across all stages of the service encounter. The 25-34 and 45-59 age groups yielded significantly lower satisfaction ratings ($p<0.05$), when compared to the 18-24 age group, for the post-process and in-process stages, respectively. These differential effects across age groups may be indicative of consumers becoming more critical of service experiences as their expectations and/or needs become more sophisticated over time. In terms of the pace terms, both the quadratic and linear pace terms were significant ($p<0.001$) across all regressions, with the negative sign of the coefficient for the quadratic pace term indicating that the curve turns down from its maximum point. This is reflected in the plot of perceived pace and satisfaction, derived using the standardized beta coefficients for the pace terms, in Figure 2[3]. Overall, these results provide support for *H1*.

While the difference in R^2 between the model with the linear pace term and the model with the linear and quadratic pace terms was significant for the regression of satisfaction on perceived pace for all

stages of the service encounter, the magnitude of the increase in R^2 for the pre-process (R^2 : from 0.28 to 0.39) and in-process stages (R^2 : from 0.24 to 0.38) was much greater than for the post-process stage (R^2 : from 0.30 to 0.36). Additionally, the maximum value for satisfaction occurred at a higher value for pace for the post-process stage (1.45) than for the pre-process (1.11) or in-process (1.01) stages[4]. Combined, these results suggest that consumers have a higher tolerance of a faster pace in the post-process.

To formally test the moderating effect of service stage on the relationship between perceived pace and service stage satisfaction, service stage satisfaction was regressed on perceived pace, as well as the interaction terms for perceived pace and service stage. Given that both the linear and quadratic terms for perceived pace were significant in the tests of the relationship of perceived pace with satisfaction, the interactions of service stage with the two pace terms were tested. In order to satisfy the independence of observations assumption required for regression analysis, a data set comprising of three data subsets was generated. Every third observation from the set of all observations was selected for inclusion in the pre-process stage data subset. Then, every second observation from the remaining observations was placed in the in-process stage data subset, with the remaining observations placed in the post-process data subset. The in-process stage was used as the reference group in the analysis. The interaction of stage with the quadratic pace term was insignificant so was dropped from the analysis. A test of the difference between the R^2 for the model without the interaction of stage and the linear pace term and the model with the interaction was significant ($p < 0.01$), providing support for significance of the interaction. The regression results are reported in Table II.

In terms of the control variables, satisfaction ratings were significantly higher ($p < 0.001$) for fine dining and upscale casual restaurants than for casual restaurants. Age also influenced satisfaction, with the 35-44 age group yielding significantly lower ($p < 0.001$) satisfaction ratings when compared to the 18-24 age group. These differential effects across restaurant type and age groups are reflective of those indicated by the regression analysis used to test *H1*. The results also indicate that the effect of perceived pace on satisfaction for the post-process stage when compared with the in-process stage was significant

($p < 0.01$). This finding provides support for a higher tolerance of a faster pace in the post-process stage. Furthermore, the results did not support a significant difference in the effect of perceived pace on satisfaction between the pre-process and in-process stages. These findings indicate that $H2$ is partially supported: customers react more favorably to a faster pace during the post-process stage of the encounter.

Furthermore, when service stage satisfaction was regressed on overall satisfaction with the service encounter, the three service stage satisfaction variables were significant[5]. However, results shown in Table III indicated that the coefficient for in-process satisfaction (0.64) was considerably larger than that for the pre-process (0.24) or post-process stages (0.17). This suggests that satisfaction with the in-process stage has the greatest effect on overall satisfaction and needs to be most closely managed, whereas faster pace for revenue management purposes in the pre- and post-encounter stages will have less effect on overall satisfaction.

Discussion

The focus of this paper was the effect of perceived pace on satisfaction in hedonic, pleasure-driven restaurant experiences of an extended duration. This type of service experience represents a context in which the length of customer use of the service is not set in advance. In this setting, the ability to maximize revenue lies in the effective management of the duration of the service encounter. However, actions taken by operators to reduce duration may influence customers' perceptions of the pace of the service encounter and change the service experience. Therefore, the objective of this study was to examine the nature of the relationship between the pace dimension of time and customer satisfaction with restaurant experiences.

Congruent with optimal arousal theory (Berlyne, 1967, 1971; McClelland *et al.*, 1953; Steenkamp and Baumgartner, 1992), our findings indicated an inverted U-shaped relationship between perceived pace and satisfaction. This finding is consistent with the notion that perceived pace can be conceptualized as a continuum, with two polarities and satisfaction being maximized at some point in the middle of the

continuum. Given that a slow pace typically manifests itself in unfilled, or wait, time, we expected, and found, a negative relationship between perceived pace and customer satisfaction at the slow end of the pace continuum (Dubé-Rioux *et al.*, 1989; Houston *et al.*, 1998; Taylor, 1994). As noted in the introduction to the paper, if revenue is to be maximized, it would be expected that service operators would seek to avoid a slow pace and the associated unwarranted wait time. Therefore, the key contribution of this study, from a revenue management perspective, lies in the insights to be gained regarding the shape of the relationship between perceived pace and satisfaction beyond the slow end of the continuum. Our findings indicate that, as the pace increases, satisfaction increases, but only up to a point, beyond which it decreases as perceived pace continues to increase. This finding lends empirical support to anecdotal evidence provided in the popular press of the negative effect fast pace can have on satisfaction (Bhatia, 2002; Szuchman and Won Tesoriero, 2004).

This study also extends the literature by examining the link between perceived pace and service process stages (Dubé *et al.*, 1991; Dubé-Rioux *et al.*, 1989; Hui *et al.*, 1998). While an inverted U-shaped relationship between perceived pace and satisfaction was supported for each of the three service stages of the service encounter, our findings also indicated that consumers have a higher tolerance of a faster pace during the post-process stage than during the pre-process and in-process stages of the encounter. In the post-process stage, the goal for the encounter has been accomplished. A faster pace facilitates termination of the encounter. Our hypothesis regarding a greater tolerance of a faster perceived pace during the pre-process stage than the in-process stage of the service encounter was not supported. However, the insights yielded from the qualitative data generated by respondents' descriptions of recalled experiences suggest that there may be forces at work during the pre-process stage that influence restaurant customers' reactions to a fast pace. The themes of familiarity and indecision arose as potential influencing variables. In terms of familiarity, the idea of novelty and the need to absorb a new service environment and range of service offerings may at first override the desire to move towards the core of the dining experience. As such, a pace that is perceived as fast may be in conflict with achieving that initial objective. Similarly, a

pace perceived as fast during the pre-process stage may conflict with self-driven indecision with regard to customer selection of service offerings.

Managerial implications

Since restaurants sell experiences rather than time, revenue management endeavors should be focused on effectively controlling the duration of the dining experience. In hedonic service encounters, actions such as decreasing the time between steps in the service process may be perceived by the customer as an increase in the perceived pace of the dining experience and may potentially affect customer satisfaction. While operators logically want to avoid an unnecessarily slow pace, study results indicate that they should also consider the negative impact that an increased pace may have on customer satisfaction. Prior research has shown that consumer satisfaction is positively associated with customer retention (Anderson and Sullivan, 1993; Bolton, 1998), repurchase intent (Bolton and Drew, 1991; LaBarbera and Mazursky, 1983; Mittal *et al.*, 1999), word of mouth behavior (Anderson, 1998), and usage levels (Bolton and Lemon, 1999). Therefore, while the short-term impact of reducing dining duration may increase customer turnover and revenue during busy periods, the revenue increase may not be sustainable if customer satisfaction is negatively affected.

Our findings are limited to hedonic service encounters and indicate that, in order to minimize the potential negative outcomes associated with a fast pace, management should focus their duration reduction endeavors on the post-process stage of the service encounter. Consumers have a higher tolerance for a faster perceived pace during the post-process stage than during any other stage of the service encounter. Furthermore, since the post-process stages only accounts for a small proportion of the variance explained in overall satisfaction with the service encounter, it should be a key target for duration reduction endeavors. Actions to reduce the duration of the in-process stage of the service encounter should be approached with caution. Our findings suggest that customers are most sensitive to a faster pace during this stage of the service encounter. A faster perceived pace during this stage may hinder consumers' ability to savor and enjoy the core element of the experience. In addition, since satisfaction

with the in-process stage has the greatest impact on overall service encounter satisfaction, actions to reduce duration during this stage are most likely to negatively affect customers' future return and recommend behavior.

Service personnel need to be sensitive to pace-induced customer dissatisfaction, especially during the in-process stage of the hedonic service experience. Respondents' descriptions of dining experiences suggested that service personnel behaviors can foster a negative reaction to pace. This underscores the need to build service personnel awareness of the potential negative effect that a faster perceived pace can have on customer satisfaction. While management may be tempted, from a time saving perspective, to focus employee training on the revenue management procedures designed to control service encounter duration (e.g. process redesign to reduce the time between steps in the service delivery process), training programs should also prepare employees to recognize, and react appropriately to, verbal and non-verbal cues from customers when they feel rushed. An objective of employee training programs should also be to build awareness of the impact of service stage on customers' reactions to a fast pace. For example, employees need to know that greatest opportunity to control service encounter duration with a minimal impact on customer satisfaction lies in the post-process stage. Therefore, the focus should be on expediting this stage of the dining experience.

Limitations and future research directions

This research has a number of limitations that can be addressed in future work. First, the findings of this study are based on a convenience sample in one country and our study was limited to one service setting. Further research using other sampling techniques and hedonic extended service encounters in other service settings is needed to establish the generalizability of our findings. Second, while the recall approach offers a number of advantages, further research wherein the perceived pace of the service encounter is manipulated in an experimental design should be conducted to determine the robustness and boundaries of the results.

Third, our study explored pace perceptions, but did not explore why customer experienced a certain level of pace. In the introduction to the paper, we identified a number of methods that have been suggested in the operations management literature for reducing actual service encounter duration such as process redesign, reducing the time between steps in the service delivery process and reducing set-up times (Davis and Maggard, 1994; Sheu and Babbar, 1996). The potential differential effects of these approaches to reducing service encounter duration on customers' perceptions of pace, and associated levels of customer satisfaction, merit assessment in order to establish what approaches are more acceptable to customers.

Future work can build on the findings of the present study, and the insights gained from the qualitative data generated in the study, to further our understanding of the role of pace perception in the service encounter in a number of ways. First, future research should examine the potential variables moderating and mediating the relationship between perceived service encounter pace and satisfaction. Potential moderating variables include elements of the service context (e.g. industry, positioning of the service firm), the service environment (e.g. customer density and perceived crowding, volume and pace of music, temperature and the comfort of the physical facilities; Oakes and North, 2008), customer background variables (e.g. culture, age, education; Keillor *et al.*, 2007) and consumption situation-specific variables (e.g. customers' pace expectations, goal of the service consumption and needs congruency; Wirtz and Mattila, 2001). In the context of potential mediators of the perceived pace-satisfaction relationship, future research could explore, for example, attributions for pace (e.g. controllable or uncontrollable causes, Puccinelli *et al.*, 2009), perceived fairness of the pace of the service experience (e.g. compared to the treatment received by other customers) and the mediating effect of service recovery on the perceived pace-satisfaction relationship.

Finally, while this study focused on satisfaction, the effects of perceived service encounter pace on a number of other dependent variables warrant examination, including specific discrete emotions (e.g. anger, anxiety and frustration versus excitement and pleasure), quality perceptions (e.g. under what

conditions and contexts will a fast/slow perceived pace affect perceived quality), and behavioral response behaviors (e.g. impulse buying and money spent; Mattila and Wirtz, 2008).

Table 1. Perceived pace and satisfaction

Independent variables	Dependent variable							
	Overall service encounter satisfaction		Pre-process stage satisfaction		In-process stage satisfaction		Post-process stage satisfaction	
	Coefficient	<i>t</i> -value	Coefficient	<i>t</i> -value	Coefficient	<i>t</i> -value	Coefficient	<i>t</i> -value
Restaurant Type ^a :								
Upscale casual	0.40	1.68 [†]	0.32	1.51	0.16	0.69	–	–
Fine dining	0.89	2.84 ^{**}	1.01	3.64 [*]	0.67	2.21 ^{***}	–	–
Age ^b :								
25-34	–0.73	–1.43	–0.04	–0.08	0.21	0.43	–1.08	–2.21 ^{***}
35-44	–1.15	–2.66 ^{**}	–0.98	–2.71 ^{**}	–1.05	–2.69 ^{**}	–1.22	–2.93 ^{**}
45-59	0.23	0.87	0.23	0.99	0.53	2.07 ^{***}	–0.34	–1.34
60 +	0.04	0.04	–0.27	–0.31	–0.12	0.13	–0.59	–0.65
Pace	0.48	6.26 [*]	0.41	6.09 [*]	0.44	5.94 [*]	0.45	6.41 [*]
Pace ²	–0.16	–4.05 [*]	–0.19	–5.21 [*]	–0.22	–5.94 [*]	–0.15	–3.93 [*]
<i>F</i>	11.04 [*]		12.92 [*]		12.04		14.72 [*]	
<i>R</i> ²	0.35		0.39		0.38		0.36	
Max. point	1.51		1.11		1.01		1.45	

Notes: ^{*}*p* < 0.001; ^{**}*p* < 0.01; ^{***}*p* < 0.05; [†]*p* < 0.1. ^aThe casual restaurant category was used as the reference group in the regression; ^bthe age category 18-24 was used as the reference group in the regression

Table 2. Moderating effect of service stage

Independent variables	Dependent variable: service stage satisfaction	
	Coefficient	<i>t</i> -value
<i>Restaurant type^a:</i>		
Upscale casual	0.53	2.67*
Fine dining	0.84	3.21*
<i>Age^b:</i>		
25-34	0.58	1.30
35-44	-1.44	-4.09*
45-59	0.30	1.36
60 +	0.33	0.39
Pace	-0.27	-2.36***
Pace ²	-0.22	-6.56*
Pre-process	-0.30	-1.40
Post-process	-0.70	-2.90**
Pace × pre-process	-0.24	-1.51
Pace × post-process	-0.51	-3.21**
<i>F</i>	14.91*	
<i>R</i> ²	0.54	

Notes: * $p < 0.001$; ** $p < 0.01$; *** $p < 0.05$; † $p < 0.1$. ^aThe casual restaurant category was used as the reference group in the regression; ^bthe age category 18-24 was used as the reference group in the regression

Table 3. Service stage satisfaction and overall service encounter satisfaction.

Independent variables	Dependent variable: overall service encounter satisfaction	
	Coefficient	<i>t</i> -value
Pre-process satisfaction	0.24	4.77*
In-process satisfaction	0.64	12.28*
Post-process satisfaction	0.17	4.42*
<i>F</i>	353.27*	
<i>R</i> ²	0.87	

Note: **p* < 0.001

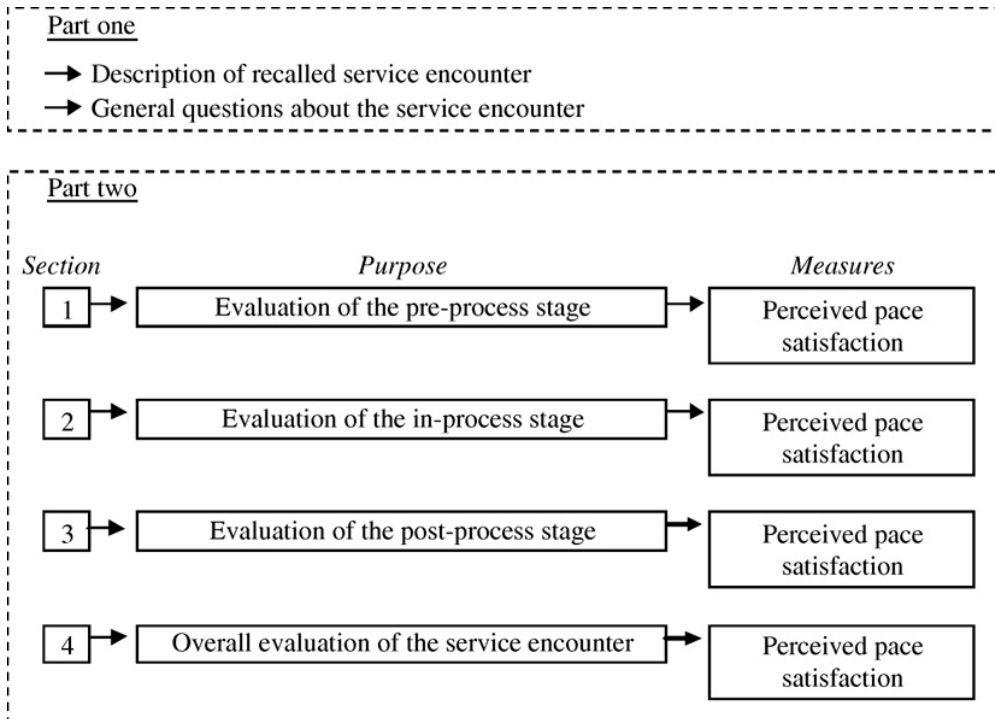


Figure 1. Questionnaire structure

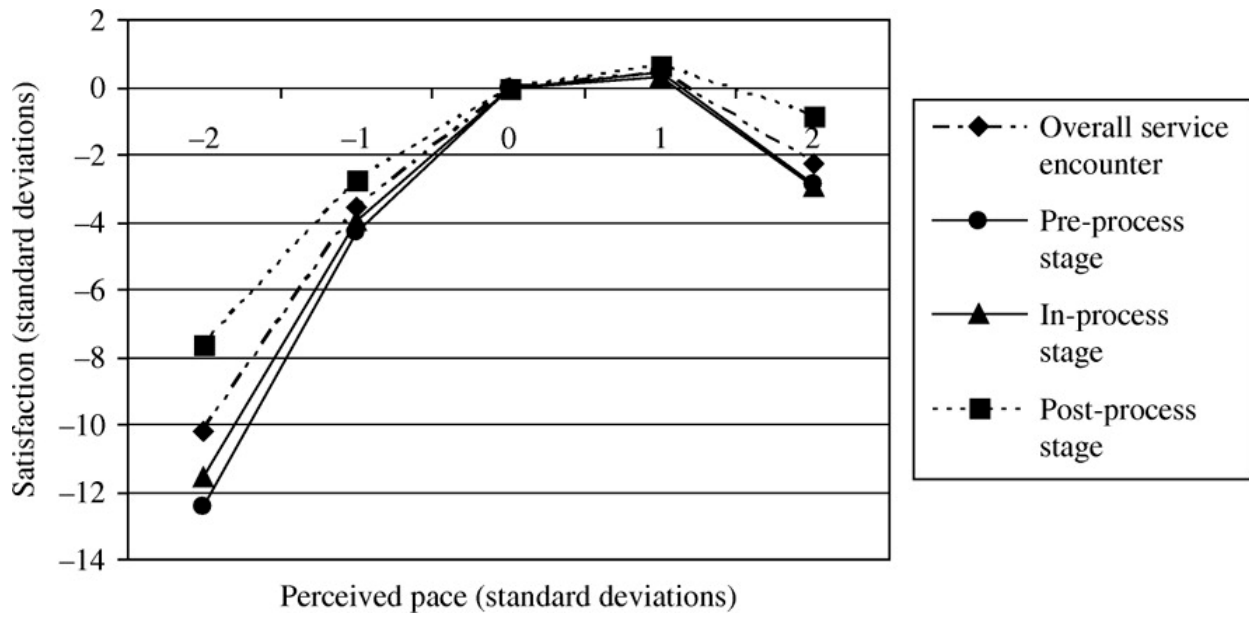


Figure 2. Perceived pace and satisfaction.

Notes

- [1] For the purpose of differentiating between brief and extended service encounters, we rely on Price et al.'s definition of a service encounter while acknowledging that the service encounter can be defined more broadly as encompassing all aspects of the service firm with which the consumer interacts – including its personnel, its physical facilities, and other tangible elements – during a given period of time (Shostack, 1985).
- [2] For the purpose of this study, a restaurant service encounter was defined as beginning when a party is seated at its table and ends when the party vacates the table. It could be argued that the service encounter begins when the party enters the restaurant and includes both the interaction with the host and the time, if any, spent waiting for a table. However, the narrower definition used in this study reflects the revenue management objective of maximizing the revenue generated per unit of inventory. The unit of inventory in a restaurant context is a seat at a table, with the associated revenue management objective being to maximize the revenue generated by each seat that exists in the restaurant. Therefore, it is time spent at the table that was relevant in this study.
- [3] Standardized beta coefficients, as opposed to raw data points, were used to better facilitate the detection of the nature of the relationship between pace and satisfaction.
- [4] Derived from regression of satisfaction on the centered pace term.
- [5] Neither of the control variables, restaurant type or age, were significant so were dropped from the analysis.

Appendix 1. Service stage definitions

Pre-process stage

This stage begins at the time that a party is seated at a table up to, and including, the point at which the first food course is delivered to the table. Typical interactions that occur during this stage include being greeted by the server; the ordering and delivery of drinks; the ordering of food; and delivery of the first food course.

In-process stage

This stage begins at the time that a party receives the first food course and lasts up until the point in time that either: the party requests the check or the server automatically delivers the include the clearing of plates and glassware; the delivery of entrées; the ordering and delivery of dessert and coffee; and the request (or automatic delivery without request) of the check.

Post-process stage

This stage is defined as beginning at the time that either: the party requests the check or the server automatically delivers the check, and lasts up to the time that the party vacates the table. Typical activities that occur during this stage include the clearing of dessert plates and other items from the table; coffee refills; the delivery of the check and collection for processing; and the return of the check to the table.

Appendix 2. Examples of respondents' descriptions of recalled experiences

Fast-paced service encounter

“The pace of the meal was a specific issue with my party on that evening so it is ironic that I received this survey just a few short days afterward. We were rushed along through our appetizer and main course. The waiter overheard a member of our party comment that we were speeding through dinner and he approached us in defense. He said we were not being rushed and we could have all the time we wanted. However, we were rushed through desert, no water glasses were refilled and the table was cleared completely while we were conversing. We received the check and the waiter was very curt and unfriendly.”

“We were seated with little to no wait – server was quite prompt – we ordered drinks and appetizers which took approximately 10-12min. Our dinner order was taken while we waited for drinks to arrive. We ordered two entrées. We were only half way through our appetizers when the entrées arrived. There was not enough room on the table for our entrées. The server asked if we wanted her to return our dinner to the kitchen and ‘hold’ it. We did not. We combined our appetizers and had them packed to go. Then the entrées could fit on the table. Before we were halfway through our meal, we were asked if we wanted dessert (this was now the fourth person/server who approached us). We asked to wait for a little while to order our dessert. That same server took our order and served it to us. A fifth person promptly brought us our check while asking if there was anything else we wanted. We felt hurried and had five different people take care of us – too speedy.”

Moderately-paced service encounter

“The server seemed calm and well-trained. Drinks orders were taken without feeling rushed to us at the table and we had enough time to consult the wine list. The server made sure that all in our party had enough time to consult the menu and special menu before taking our orders. Selections on the menu were explained slowly when asked. Salads and soups were brought to us with only a moderate amount of

waiting time, but not rushed, so that we could chat a bit. A decent lag of time ensued between salad course and entrées arriving. Dirty plates were removed in good time. Dessert choices were not rushed upon us, and we were given time to think about ordering. The checks were taken care of quietly and efficiently.”

“I was out with family to celebrate a confirmation. Our group consisted of a grandparent through an eight year old. The server was very polite and personable to the group. [The server] Brought drinks promptly and kept a great eye on them to keep them filled. The time between the drink delivery and the first course (salads) provided an opportunity to socialize but was not so long that the kids were bored and distracted. The server was very good at clearing the plates promptly so they were not available for the kids to ‘play with’. The entrée’s was delivered about 5 minutes after the last salad plate was cleared. The server did an excellent job of pacing the meal – not too fast so the adults felt rushed and not too slow so the children did not get bored. After dinner we watched the confirmation open his presents. During this time, the server returned with the receipt – congratulated him and told him to enjoy opening his presents. Despite the crowd, she did not suggest we ‘move on’.”

Slow-paced service encounter

“We were greeted at the door by the host with a smile. We were seated at the last available table. We were anticipating a nice lunch. However, it took our waiter fifteen minutes to greet us. Meanwhile our surrounding tables were served and they finished their meals before we even received our entrées. Our waiter didn’t give us any progress reports on how our order was coming along. . . My husband ordered onion soup which was served just about two minutes before the entrées. It was a very disappointing experience.”

“[We] arrived, promptly seated; waiter in appropriate time took drink order; returned with drinks and complimentary bruschetta. Slightly longer than expected, waiter returns for dinner order (bruschetta finished, wine half gone); brings salad to one person who ordered it after about ten minutes. Thirty minutes later the waiter returns to apologize for slow service but “everything is made to order, it will be

out in a few minutes”. Twenty minutes later the owner arrived to apologize for slow service and “it will be out in a few minutes”. Ten minutes later, when a table of ten had been served, cleared, gotten dessert and the dessert cleared, all since we got there, and another couple seated after we arrived all eating their main course, we walked out. No offer of additional appetizer or wine. Total visit was made without receiving main course .90 min.”

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