Can Customers Detect Script Usage in Service Encounters? An Experimental Video Analysis

Liana Victorino, University of Victoria
Rohit Verma, Cornell University Bryan
Bryan L. Bonner, University of Utah
Don G. Wardell, University of Utah

Service scripts are predetermined guides for employees to follow when delivering service to customers. Some services require employees to strictly follow a script, whereas others use scripts more flexibly, if at all. Extant research regarding service scripts in the domain of service operations has mainly addressed the topic from more of a process view as a control mechanism for the encounter but minimal research has examined customer perceptions of scripted service. The authors examine a pivotal first question, which is if customers can detect different approaches to script use. To answer the question, the authors conducted a video experiment of face-to-face service encounters in the hospitality industry. The results indicate that customers can detect degrees of script use across both standardized and customized encounter types. This work serves as initial empirical evidence that customers are indeed capable of detecting subtleties in scripting approaches in different service situations and supports that script level is an important service design construct for research. Furthermore, the authors highlight the use of a video experiment as an innovative methodology for assessing customer perceptions of intangible aspects to services in a realistic setting. One implication of this study is that managers need to assess the impact that different script levels have on customer perceptions of various service performance measures. Managers should also consider the effect script detection has on customer perceptions of the service experience and service brand to assure their script approach aligns with the organization's service strategy.

Introduction

''Never say 'Hello' to a guest; always opt for a more formal greeting like 'Good Morning.' Never give directions to the restroom; always escort the guest right to the door'' (Sanders 2006, p. B1). These

rules were used for decades at Ritz Carlton hotels. ‘‘Hi, how are you today?’’ or ‘‘You can order when you’re ready,’’ and never ‘‘What do you want?’’ or ‘‘Can I take your order?’’ are rules specified to all Taco Bell employees for how to greet drive-thru customers (Greenfeld 2011). Rules such as these are examples of service scripts and illustrate the rules for employee behavior, (e.g., escort guests to the restroom), or acceptable language, (e.g., use phrases such as ‘‘my pleasure’’ rather than ‘‘no problem’’) that scripts often specify. In practice, script complexity and how rigidly or flexibly the script is applied varies. That is, employees may be required to invoke a script that has few or many subroutines (Tansik and Smith 1991) or be expected to adhere fully to a service script instead of improvising (McCarthy, Pitt, and Berthon 2010; Tansik and Smith 1991).

Scripting specifies ‘‘ . . . the sequence of behaviors that employees. .. are expected to follow during the service encounter’’ (Lovelock and Wirtz 2007, p. 54). Thus, a service script summarizes various job expectations and provides structure to guide frontline employee behavior (Ashforth and Fried 1988; Tansik and Smith 1991). It can also act as a fail-safe tool to control the service process (Chase and Stewart 1994) and assure the proper treatment of customers (Stewart 2003). Although service scripts have a direct association with operational issues such as efficiency, consistency, and quality, there is little empirical research on the topic particularly from the customer perspective (e.g., Groth, Hennig-Thurau, and Walsh 2006). A likely reason for this research gap might be because an adequate examination of service scripting requires using research approaches that are not common to service operations management. In fact, Cook et al. (2002) suggest that researchers build on knowledge and methods from multiple disciplines when studying service design. To this end, the current article builds on the research of other domains and employs an experimental approach that is not ordinarily used in the service operations management discipline to examine the under-researched topic of service scripting.

Prior to exploring the operational implications of service scripting, it is necessary to determine if customers can indeed detect script usage in an encounter. Therefore, in this article, we investigate whether customers can distinguish the form of scripting used to design the encounter, from rigid to more flexible. Past research has suggested that customers’ detection of variations in service delivery impacts service outcomes (Groth, Hennig-Thurau, and Walsh 2009; Schau, Dellande, and Gilly 2007). Therefore, it is important to determine if customers can detect various scripting approaches to serve as a foundation for future empirical work.

Methodologically, our article highlights the use of video-based experimentation as an innovative approach for research in service operations. A carefully designed video experiment provides the

necessary control to ensure internal validity. Furthermore, a video experiment allows for a more realistic portrayal of a service scenario compared to commonly used data collection techniques, adding to the ecological validity of the study (Bateson and Hui 1992; i.e., elements in the study reflect the real world). In summary, the use of a video experiment for this research assured that we examined service scripting in a realistic context relatively free of potential confounding variables.

This article is organized in the following manner. First, we review past research that serves as a foundation for the conceptual development of the article. Next, we present the research approach and describe the process we followed to develop the video vignettes (i.e., short clips that depict varied service interactions) used in the experiment. We then present results and conclude by discussing the implications of our findings, including future research directions.

Theoretical Background

Scripts

Research on scripts spans several academic disciplines including marketing (e.g., Hubbert, Garcia Sehorn, and Brown 1995; McCallum and Harrison 1985; Mohr and Bitner 1991; Smith and Houston 1983; Solomon et al. 1985) and organizational behavior (e.g., Ashforth and Fried 1988; Gioia and Poole 1984; Lord and Kernan 1987). Much of the research has been based upon script theory (Abelson 1976, 1981) and the application tends to differ by discipline. For example, marketing scholars have utilized scripts as a means to understand how customers evaluate a service interaction based on mental maps or structured expectations (McCallum and Harrison 1985; Smith and Houston 1983). In organizational behavior, scholars have related scripting to job design, stating that scripts provide structure and guide behavior so that outcomes are more predictable (Ashforth and Fried 1988; Tansik and Smith 1991).

It is important to note that within much of the extant research, scripts tend to be presented as mental models that are developed through experience, so that the repetitiveness of the behavior becomes cognitively structured into the typical order and content of an event (Abelson 1976). Other scripts, however, are derived as operating procedures or are learned through training. Such scripts are more akin to routines or standard operating procedures. Our interest is more closely related to this latter type of script where the script is not chosen or developed by the employee but rather designed by the service organization and formally used to guide and control the service delivered.

We found only one empirical study that investigated service scripts (i.e., Schau, Dellande, and Gilly 2007). Schau, Dellande, and Gilly (2007) attained evidence of script deviation in practice and

witnessed that it was typically initiated by the customer. They also observed that on-script encounters resulted in fewer negative outcomes overall but were less frequently associated with positive gestures or comments by customers when compared to the deviated encounters. Our work builds upon their seminal work and directly assesses customer perceptions through a video experiment.

Emotional Labor

Emotional labor refers to the process by which workers are expected to display or suppress particular emotions or feelings as part of their job (Grandey 2000; Hochschild 1979). Hence, an important parallel to research on service scripting is scholarly work regarding emotional labor where expected emotions are often specified through organizational display rules (Gosserand and Diefendorff 2005; Grandey 2003). Typically, an employee will choose between two acting strategies, deep or surface acting, when managing emotions. A deep acting strategy refers to an employee sincerely trying to feel inwardly the emotions they are asked to display outwardly, whereas surface acting involves ‘‘faking’’ the emotional display (Grandey 2000, 2003; Groth, Hennig-Thurau, and Walsh 2009; Hochschild 1979).

Service scripts serve a function similar to the organizational display rules of emotional labor. A service script will often include rules for the demeanor and expressed emotions employees are to convey to customers (Sutton 1991; Sutton and Rafaeli 1988). Groth, Hennig-Thurau, and Walsh (2006) posited that rigidly applied scripting is associated with a greater use of surface acting whereas more flexible forms of scripting are associated with a deep acting strategy. In addition, a deep acting approach is usually considered more authentic than surface acting (Grandey et al. 2005; Hennig-Thurau et al. 2006). Past research has found that emotional labor strategies impact customer outcomes such as their affective state (Hennig- Thurau et al. 2006), their perceptions of service quality, and their loyalty (Groth, Hennig-Thurau, and Walsh 2009) with deep acting approaches typically resulting in more positive benefits from the customer perspective.

Groth, Hennig-Thurau, and Walsh (2009) have specifically investigated customer detection accuracy of the emotional labor strategy. They found that customer detection accuracy can act as a moderator that strengthens the relationship between the emotional labor strategy and customer outcomes. Thus, as a customer’s detection ability becomes more accurate, it enhanced the influence of the emotional labor strategy, such as increasing the positive benefits of deep acting.

Although the concepts of scripting and emotional labor have similarities, there are also important differences that make an empirical investigation of script detection worthwhile and unique. Emotional labor pertains to the emotional display of the employees and does not encompass the notion

of managerially defined specifications for the behavior and phrases employees are to use. Thus, scripting goes beyond specifying the displayed affect of the employee. Furthermore, the execution of emotional labor strategy is typically left to the employee, whereas script level is dictated by the manager or the service organization. Thus, script detection is a topic that warrants research. We now develop a conceptual framework to support the motivation for our research questions.

Conceptual Framework

Our research extends previous work on scripting by investigating whether customers can detect the degree to which a service encounter is scripted. Recall, that Groth, Hennig-Thurau, and Walsh (2006) proposed that a rigidly applied script will likely result in more surface acting whereas a more flexible script will result in more deep acting. Just as the detection of emotional labor strategies has been tied to certain customer outcomes (Groth, Hennig-Thurau, and Walsh 2009), we believe that the detection of variations in service scripting will have implications for service design. Furthermore, similar to Schau, Dellande, and Gilly (2007), we sought to examine the verbal content of scripts.

Our research adds to Schau, Dellande, and Gilly's (2007) script subversion work, as well as the research on emotional labor detection by Groth, Hennig-Thurau, and Walsh (2009) in the following ways. First and perhaps foremost, our study was conducted in a controlled environment through the use of a video experiment that allowed us to have direct control over the level of service script used by the employee thereby mitigating other potential factors that may influence customer perceptions. In other words, our experiment provides internal validity by firmly establishing the directionality of the causal relationship between script level and the perceptions of those in the customer role. Second, we assessed different process types within the same service industry to determine if there are certain process types where service scripting is less likely to be detected. Third, we experimentally varied levels of service scripting, using different levels of improvisation to depict a predominantly scripted and a more relaxed form of scripting. Finally, we directly measured customer perceptions for how scripted the encounter seemed.

Similar to an employee using differing emotional labor strategies to evoke organizational display rules, degrees of scripting can impact how employees deliver service. We were specifically interested in testing different levels of scripting based on the predefined words and phrases that employees may be expected to follow. We did so recognizing that a customer's ability or inability to detect the script level may have implications for their perceptions of the experience. Therefore, we were interested in examining the following research question.

RQ1: Can customers detect the presence or absence of a service script in a face-to-face service encounter? More specifically, can customers detect distinct levels of service scripting as the script is less or more rigidly followed?

In addition, we were interested in testing customer detection ability under different service process types. Specifically, do customer detection abilities differ if the service encounter is standardized versus customized? Previous work in services has addressed the inherent differences between service types and processes (see Cook, Goh, and Chung 1999 for a detailed review of service classification literature). One of the common ways to categorize service processes is by the level of standardization, wherein a standardized process is described by following routine tasks that result in uniform and predictable outcomes across customers, and customized processes allow for tailoring and flexibility to respond to different customer needs (Shostack 1987).

Moreover, research has shown that particular service encounters deemed as more or less standardized have particular characteristics and provide different managerial insights of what is important for service design considerations (Bowen 1990; Lovelock 1983; Schmenner 1986). For example, Solomon et al. (1985) proposed that expectations of services are associated with the demands of the encounter type. Research has also shown that customers hold different priorities for importance when interacting in standardized versus customized processes (Bowen 1990).

Scholars have suggested that different approaches to script use be applied dependent on the nature of the service (McCarthy, Pitt, and Berthon 2010; Tansik and Smith 1991). Following a similar logic, we also believe that the vast differences between standardized and customized processes, in other words the conditions under which a script is used, must be considered when deciding how to script the encounter. In particular, scripting may impact service delivery differently when applied to a process that naturally accommodates variation in requests (i.e., customized encounter) versus a process that is more uniform in design (i.e., standardized). By examining if customers detect scripts for two different types of service processes (i.e., a standardized and a customized encounter) we can confirm or eliminate the relationship between these two constructs. It is unclear, however, what strength and direction the effect of process type might have on customer detection ability. Thus, we propose the following research question:

RQ2: Does an encounter being standardized versus customized affect customers' ability to detect the presence or absence of a service script in a face-to-face service encounter? More specifically, can customers detect distinct levels of service scripting as the script is less or more rigidly followed across process types?

As mentioned earlier, we tested research questions 1 and 2 through a controlled video experiment that manipulated the level of script used in a service encounter. We now detail the process followed to design the video experiment to address the two research questions.

Research Design and Methods

A few scholars have employed video-based methods to explore various research questions in services (e.g., Dallimore, Sparks, and Butcher 2007; Grandey et al. 2005; Mattila, Grandey, and Fisk 2003; McColl-Kennedy, Daus, and Sparks 2003; Luong 2005; Seawright and Sampson 2007). Video methods have been found to induce similar psychological and behavioral responses compared to studies conducted in real service settings (Bateson and Hui 1992). They provide respondents with the opportunity to have a third party perspective of the service experience which is less susceptible to error variance than the interpretation of written cases (Seawright and Sampson 2007). However, the use of video as a research tool is still quite new in service operations. A notable exception is Seawright and Sampson's (2007) work that employed video techniques to examine the psychological aspects of waiting in lines. Due to the relative novelty of our research methodology in a service operations context, this section details the progression of steps followed in developing the video experiment.

Preliminary Work

Prior to developing the video experiment, we conducted interviews and pilot work to assure that our research design was practical and rigorous. We began by interviewing employees (N = 9) and managers (N = 8) from a variety of service industries to gain practical insight into the current usage of scripts and to gather examples of script rules to apply within our experimental vignettes. We also obtained information to aid the development of a script detection measure.

After the qualitative work was completed, we proceeded to develop written vignettes that depicted both a standardized and a customized service encounter to be used as a basis for designing the video experiment. We represented standardization level by examining two different types of encounters within the same service context—a guest staying at a hotel. In particular, the standardized interaction was *hotel check-in* and the customized interaction was *concierge services*.

The written vignettes for both process types were designed to depict three different service script levels, ranging from predominantly scripted to a relaxed approach. The scripting level was adapted from Tansik and Smith's (1991) scripting model in which they describe various levels of script intensity. They defined script intensity by how strictly employees must adhere to a script (Tansik and

Smith 1991). For example, in a low intensity case, the employee is allowed to improvise at times. Tansik and Smith's low intensity category would be similar to our relaxation of script level. To summarize, we wrote six vignettes: three levels of script adherence (i.e., predominantly scripted, moderately scripted, and a relaxed approach to scripting) for each of the two process types (i.e., standardized or customized).

The development of the written vignettes occurred in two phases. In the first phase, the basic service process steps for the standardized and customized encounters were determined. A general framework was implemented for both instances with the customer initially greeted by the service provider, followed by the delivery of the requested service and concluded with a closing statement. The second phase involved the development of service script rules. To increase the realism of the encounter, service script rules were designed to be similar to the examples obtained during our qualitative research phase and from anecdotal cases of service scripting we researched.

Within all of the written scenarios, the employee provided the same information content but with a different level of adherence to the script. Service script rules acted as a reference point from which to deviate when creating the moderate and relaxed scripting cases. In all cases, the actual content and outcome of the service did not vary. To achieve the desired consistency, the written vignettes went through multiple iterations and were tested twice to refine the script manipulation for the video experiment. Written scenarios were piloted to avoid the potentially higher expense of revising the filmed scenarios.

During the first round of piloting, we sampled a small set of graduate students (i.e., N = 14) to get preliminary feedback regarding the written scenarios. After revising the written vignettes, we conducted a larger-scale pilot study. Each respondent evaluated only one process type (N = 71 for standardized and N = 59 for customized), but saw all three script levels within that process type. We found that all mean estimates were in the appropriate direction and were significantly different from one another. Leveraging the support and insights from our preliminary work, we proceeded to film the vignettes using the piloted written scenarios as our guide.

Video Experiment Development

Video clips of staged service interactions, or video vignettes, were created based on the preliminary work described earlier. Professional actors were auditioned and hired to play the parts of the employee and customer. A professional crew was hired to film and edit the video clips. A hotel kindly permitted the videos to be filmed in their front lobby. The video segments were all filmed as a

continuous shot, over the shoulder of the actor playing the customer role and focused on the face of the actor playing the employee role.

In preparation for film production, the actors were given the piloted written scenarios. The customer's role remained consistent across vignettes. Thus, the actor playing the customer would ask the same questions and respond identically for each of the encounter types. However, in our attempt to replicate the appearance of a real hotel transaction, we did not expect the actor playing the part of the employee to follow the written vignettes to the letter. For instance, it is unlikely that an employee in practice would literally be reading from a service script while serving the customer in a face-to-face setting. Instead, the actor was allowed multiple takes for each vignette and the version that most closely resembled the intended written vignette design was selected. We also wanted to portray distinct levels of scripting based on the rigidity of script use. As is done in practice, we attempted to reflect an encounter where the employee may be expected to adhere strictly to the script or may be guided by service values or suggested scripts. Therefore, for the predominantly scripted case the actor was instructed to rigidly follow the script, whereas for the moderately scripted and relaxed scripting interactions, she was allowed more flexibility.

In addition to filming portrayals of the written vignettes, we filmed two improvised scenarios to provide the impression of a more realistic relaxed approach to scripting the service encounter. For these cases, the actor playing the part of the employee was instructed to improvise the service encounter completely, using words and phrases she felt comfortable saying. However, she still had to follow the service process steps (i.e., greeting, service outcome rendered, and closing). The actor playing the role of the customer responded with the same lines as in the previous service vignettes for consistency purposes.

At the end of the filming process, four clips were completed for both service process types under the following service script levels[1]: *impromptu, relaxation of script, moderately scripted, and predominantly scripted.* To reflect the designed script level more accurately, we made the following changes to the labeling: (1) *Relaxation of script* represented the improvised case from the video shoot as it was the most realistic depiction of a truly relaxed form of scripting; (2) *Moderately scripted* was the combination of the relaxation and moderately scripted cases from the written vignettes; and (3) *Predominantly scripted* was the predominantly scripted level from the written vignettes.

[1] Samples of the video scenarios used in this study is available upon request from Rohit Verma (rohit.verma@cornell.edu).

The selected video vignettes were designed to control for various factors that could also potentially affect the results. First, as mentioned earlier, within the service script drafts, the content provided by the actor playing the employee role was kept consistent. Second, the actor's responses for the customer role remained the same. Third, the three parts of the service interaction (e.g., the greeting, the service process to provide the outcome required by the customer, and the closing) were present across all vignettes. Fourth, the emotional labor component of the employee's task was kept consistent with respect to her demeanor and emotion (i.e., the affect displayed by our employee actors were the ''general pleasantness'' typically expected of hotel staff interacting with customers). Finally, a number of considerations were made at the video shoot to keep the appearance of the encounter constant. For example, the video was always set to shoot over the shoulder of the customer, not showing the face of the actor playing the role of customer but rather focusing the viewer's attention on the service being provided. The service scenarios that were least under our control were the improvised takes, which increased the realism of a truly relaxed interaction.

The resulting video clips were inserted into an online questionnaire. Respondents first saw a screen that detailed concise instructions about their role in the study. To prevent attrition of respondents, we described information about how to get the video clip to play, the approximate time it would take for the video to load, and the estimated length of the interaction. On the next screen, respondents were randomly assigned to watch only one of the video clips (i.e., our independent variables were manipulated using a between-subjects approach). Thus, there was no concern for potential sequence effects for this study.

Video Experiment—Data Collection, Results, and Analysis

In this section, we provide the results of the video experiment. We begin by providing a description of the data collection procedure and sample characteristics. Then we present the findings and address each of the research questions.

Online Distribution of Experimental Scenarios and Sample Characteristics

Subjects for the video experiment were obtained through the assistance of a reputed survey research company. A sample was drawn from a U.S. population that represented a diverse background of individuals. The experiment was distributed online over a period of one week. We requested a sample of approximately 1,000 individuals. Thus, 5,000 survey links were generated to be released in phases by the market research firm, in batches of approximately 1,000 every few days until the desired quota was

reached. The majority of the individuals contacted responded within the first few days. After receiving over 900 responses in approximately a week's time, approximately 700 of the respondents met the screening criterion of staying at a hotel in the last year. Of these responses, over 200 respondents took less than 10 minutes to complete the questionnaire and were removed from the data set. It is important to note that over 65% of the deleted cases were missing responses to the majority if not all of the questions. Furthermore, we deleted those respondents who did not answer any questions or responded with ''I don't know'' for all of the script detection items. We had the luxury of following a strict data screening process because we were able to collect such a large sample.

After the data screening process, 456 respondents were retained with each experimental condition (or cell) containing more than 45 individuals. Note that some of the respondents missed or selected ''I don't know'' for one or a few of the service script detection items after the data had been screened. Rather than treat these responses as missing from the system, the missing response was substituted with the series mean for that item (Tsikriktsis 2005). An overview of the respondent background represented in the remaining national customer database for testing script detection is presented in Table 1.

Table 1. Respondent Background

Variable	%
Age	
30 years old or less	9.4
31 to 50 years old	33.6
51 to 60 years old	33.8
over 60 years old	21.9
Gender	
Male	32.5
Female	66.0
Education	
Some college or less	38.6
College Degree	31.1
Graduate Degree	28.9
Income	
$50K or less	25.2
$50,001 to $100,000	41.2
Over $100K	25.2
How many trips were taken in the last year?	
3 or less trips	57.7
4 or more trips	41.7
Reason for travel	
Leisure	78.1
Business	21.9

Note: All percentages do not sum to 100% due to respondents having the option of selecting, "Rather not ay" or not selecting an answer.

Service Script Detection Measure

We were not aware of any previously validated script detection scales, so we developed a multi-item scale to measure script detection by customers. To do so, we reviewed interviewee responses from our qualitative work about how scripts impact their service delivery because we believed they would be akin to how customers perceive the encounter. We found that similar themes appeared across interviews, which we used to develop the scale. They are the naturalness in employee's service delivery, the robotic tone of the employee, and the formality of the employee's language and behavior.

To represent the perceived script level of the encounter, respondents were provided with the definition of a service script and then asked to rate the extent to which they felt the service being delivered was guided by a service script. The definition provided to respondents was worded as follows: ''*A service script is a detailed guide for frontline employees to follow when interacting with customers. It includes specific words and phrases that the employee is trained and instructed to use with all customers. Given this description, how scripted did you find this service interaction to be?*'' Then respondents were questioned regarding their perceptions of how natural, robotic, and formal the employee sounded while interacting with the customer. The wording for the naturalness item was as follows: ''*How natural do you think the service employee sounds while interacting with the customer?*'' The other items followed a similar wording but the word ''natural'' was replaced by ''robotic'' or ''formal.''

To test if any of the items were describing the same factor (e.g., perception of service script), we conducted a principal components analysis. Table 2 provides the resulting factor loadings as well as item descriptions. As shown, we found that service script perception, formality level, and robotic tone all loaded on the same factor which we have labeled as service script presence. Given that our focus was on script detection, we have focused our analysis only on the dimensions found to describe perception of service script level. The items that loaded on the first component were combined into a service script perception index by taking an average of the items to measure customers' perceptions of service script level (Cronbach's a α= .61). A threshold value of .60 represents a suitable level of reliability for research in earlier phases of development when newly developed scales are being used (Flynn et al. 1990; Nunnally 1967; Peter 1979), which is true of our work. The composite estimate for perceived service script level was used as the dependent variable in our analyses.

Service Script Level Perception for Standardized and Customized Service Encounters

The main objective of our analysis was to assess whether customers' perceptions of service script level were impacted by the manipulated service script level and the service encounter type. A 3 (script level: predominantly scripted/moderately scripted/relaxed approach) x 2 (process type: standardized/ customized) between-subjects analysis of variance (ANOVA) test with perceived script level as the dependent variable was performed to investigate the research questions. The main effect for script level was significant, $F(2, 450) = 17.427$, $p < .01$, which indicates that the means of respondents' perceived script level ratings differed overall between assigned script levels. To determine which of the designed script levels were significantly different from one another, we performed a Tukey's honestly significant difference (HSD) post hoc test. All pairwise differences between the perceived script levels by respondents for the three designed script levels were significant (all $p < .01$). In addition, the mean perceived script ratings were all in the appropriate direction based on the degree of scripting used to design the encounter. The predominantly scripted encounter received the highest average rating for script perception level ($M = 5.19$, $SD = 1.16$, $N = 129$). In comparison, the moderately scripted encounter ($M = 4.74$, $SD = 1.13$, $N = 217$) had a lower rating and the relaxed case ($M = 4.28$, $SD = 1.23$, $N = 110$) resulted in the lowest average rating overall. This finding confirms respondents' ability to detect the script level they witnessed during the simulated encounter and addresses RQ1.

The main effect of process type, however, was not significant, $F(1, 450) < 1$, $p > .05$. The nonsignificance for process type does not affect the relationship between the designed script level and perception of script level by respondents. Figure 1 depicts the resulting mean perception rating for each of the designed script levels across the two encounter types investigated and shows graphically the results described above. Combining the results of a nonsignificant main effect for process type and the nonsignificance of the interaction term indicates that the standardized and customized cases could be conceptually collapsed together. Therefore, process type does not have an influence on detection ability of the designed script level by respondents, which addresses RQ2.

To summarize, in addressing RQ1, the results indicate that respondents were savvy enough to accurately detect the degree of service scripting used to design an encounter in relation to the other script levels. In contrast and with regard to RQ2, an encounter's process type did not appear to have an effect on the perceived script level nor service script detection ability of respondents, as suggested by the nonsignificant main effect for process type and the interaction term, respectively. Collectively, these results indicate that customers have the ability to detect the level of scripting used in services regardless

of the type of process. These results therefore imply that service designers should pay equal attention to the impact scripting has on customer outcomes, regardless of the characteristics of specific processes.

Table 2. Principal Component Analysis Results

Survey Item	Service Script Presence	Naturalness
Perceived Service Script – How scripted did you find this service interaction to be?	.792	.084
Unnatural – How natural do you think the service employee sounds while interacting with the customer? (reverse-coded)	−.146	.918
Formal – How formal do you think the service employee sounds while interacting with the customer?	.773	−.392
Robotic – How robotic do you think the service employee sounds while interacting with the customer?	.692	.536

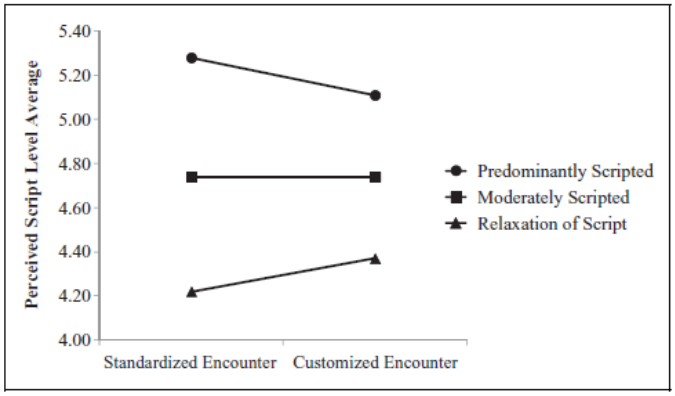

Figure 1. Average perceived script level by service process type.

Customer Background Effects

To test for any potential customer background effects that may have influenced the results, we ran a series of two-way ANOVA tests. In particular, we examined if certain demographic factors contributed to respondents' perceptions of scripting beyond the designed encounter. To do so, we retained the same dependent variable (i.e., the composite script perception score) and one of the independent variables (the designed script level) from before. The second independent variable in each ANOVA represented one of the following customer background descriptors: age (50 years old or less or over 50 years old), gender (male or female), education (college degree or less or a graduate degree), income ($100K or less or over $100K), frequency of travel (three or less trips or four or more trips), and reason for travel (primarily business or leisure travel). Each of the customer background variables was reduced to two groups to avoid having small frequencies ($N < 10$) within any one of the groups and to try to achieve a relatively balanced design.

In addition to determining if the customer background variables were affecting our findings, we wanted to capture if the influence of a customer's background held across both types of processes.

Therefore, the data were split into the standardized and customized conditions and ANOVA tests were run for each of the customer background variables. The results for the significance level for the main effects and interaction effect for each of these tests are provided in Table 3. As the table shows, all of the main effects for the designed script level variable remained significant ($p < .05$) except for a marginal significance ($p < .10$) for the reason-for-travel factor within a customized encounter. The main effects for the customer background variables were not significant ($p > .05$), although the effect for education in a standardized encounter was marginally significant ($p < .10$). Only one interaction effect (between age and designed script level for the customized encounter) was marginally significant ($p < .10$). The nonsignificant findings for the background variable effects and interactions, combined with the significant effect for the designed script level variable, imply that the observed differences in perceived service script level are primarily due to the changes in the designed script level represented and not to personal characteristics of the subjects.

Discussion and Future Research Directions

In this section, we summarize the main contributions of our work, namely an empirical assessment of service script detection and the utility of video experiments to conduct service operations research. We also highlight avenues for future research.

Discussion

We believe that the current study's experimental findings provide important insights for service design research. The first and perhaps most important result, which addresses RQ1, is the confirmation that customers can reliably perceive the degree of scripting used during a service encounter relative to the other script levels. Our study found that customers are not only capable of detecting the presence or absence of a script but can also detect the degree of scripting. This finding suggests that customers are able to detect subtleties in service design for script level.

Further supporting customers' detection capability, and in answer to RQ2, is the finding that customer detection ability holds constant across the standardized and customized service contexts of this study. The nonsignificant interaction effect between script detection ability and process type was somewhat surprising and therefore interesting: that detection of script was evident regardless of process type. Previous research on process types suggests that standardized processes are used when a process has similar customer requests and typically have linear processing rules for tasks. Alternatively, customized processes have to be designed to adapt to variations in customer requests (Shostack 1987).

In addition, it has been suggested that script use be adapted given the nature of the service process (McCarthy, Pitt, and Berthon 2010; Tansik and Smith 1991). Based on the differences between standardized and customized processes, we had anticipated that we would likely see customers' ability to detect scripts be influenced across process types. Although the result was somewhat unexpected, Groth, Hennig-Thurau, and Walsh (2009) obtained a similar result in that process type (i.e., moderate vs. high contact service) did not influence the relationship between emotional labor and the customer experience.

Table 3. Respondent Background Analysis

ANOVA Test	Standardized Significance	Customized Significance
Dependent variable = perceived script level		
Age		
A. Script level	$p < .05$	$p < .05$
B. Age (50 years old or less/over 50 years old)	n.s.	n.s.
A × B	n.s.	$p < .10$
Gender		
A. Script level	$p < .05$	$p < .05$
B. Gender (Male/female)	n.s.	n.s.
A × B	n.s.	n.s.
Education		
A. Script level	$p < .05$	$p < .05$
B. Education (College or less/graduate degree)	$p < .10$	n.s.
A × B	n.s.	n.s.
Income		
A. Script level	$p < .05$	$p < .05$
B. Income ($100K or less/more than $100K)	n.s.	n.s.
A × B	n.s.	n.s.
Number of trips		
A. Script level	$p < .05$	$p < .05$
B. Number of trips (three trips or less/four or more trips)	n.s.	n.s.
A × B	n.s.	n.s.
Reason for travel		
A. Script Level	$p < .05$	$p < .10$
B. Reason for travel (Business/leisure)	n.s.	n.s.
A × B	n.s.	n.s.

Note. *n.s. represents findings that were nonsignificant, $p > .10$.

While not formally stated as a research question, we also found that customers do not perceive standardized encounters in general to be more or less scripted in comparison to customized encounters regardless of the script level used. Our findings related to potential effects of background characteristics suggested that the primary driver for script detection was how the scripting of the encounter was designed and not other extraneous customer-related variables. Given that customer detection of scripts held across the standardized and customized conditions and was primarily unaffected by customer backgrounds, we believe the consideration of script level is an important construct for service design.

Research regarding service scripts in the domain of service operations has mainly addressed the topic from more of a process view as a mechanism to assure that the employee provides a consistent level of service. What is not yet clear is how customers and their perceptions of the encounter are

affected by this design decision. It is our contention, however, that prior to being able to understand how the customer is affected by scripting, it is first necessary to determine if a customer can make such a high level of distinction in service delivery approaches. Our work serves as initial empirical evidence that customers are indeed capable of detecting subtleties in scripting approaches in different service situations and thus paves the way for further academic research on customer perceptions of scripting such as how it affects perceived quality or customer loyalty.

From a managerial standpoint, our research suggests that the decision to use service scripts or forms of scripting must not be made blindly. Customers are not detecting scripting as an either-or proposition. Instead, customers have a high capability of detecting the level of script used during standardized and customized encounters. Customer awareness of the service scripting approach may affect customers' perceptions of various service performance measures. Recall that work regarding emotional labor has found that customers' detection of emotional labor strategies impacts their perceptions of the encounter (Groth, Hennig-Thurau, and Walsh 2009). Also, script subversion was found to have varying impacts on observed customer outcomes such as positive or negative gestures or comments as well as the percentage of post-fulfillment inquiries or returns (Schau, Dellande, and Gilly 2007). Service managers must recognize the potential perceptions that customers may be forming about their organization based on their service design strategy. Additionally, managers should consider the signals that particular uses of scripting send to customers and what implications these perceptions of scripting have on the service experience and perceptions of the service brand, to assure such views are aligned with the organization's service strategy.

Moreover, the detection of a script may have an effect on how a customer responds and participates in the encounter itself. It may be that service script detection itself acts as a cue that influences what mental-model script a customer evokes in his or her participatory role in the service encounter and as a result may impact the customer coproduction role (Cook et al. 2002). Managers should be aware of the potential ramifications that service script detection has on their service to assure effective design. We also believe that customers' ability to detect service scripts has significant implications for the quality and authenticity of service delivered as perceived by customers. Our findings become even more important and relevant when one considers the propensity of service firms who target higher-end customers and charge a premium for providing superior quality service.

In addition to the service design insights we outline above, this study showcases a rigorous methodological approach to examine service experiences. Similar to Seawright and Sampson (2007), we found video experimentation to be an effective way to examine the dynamic environment of services.

The current article thoroughly details the progression of steps in developing a video methodology for service operations and we hope it and the other video studies referenced within this article act as starting points for more video experimental research.

Future Research Directions

The purpose of this study was to serve as an initial empirical investigation of service scripts and we are hopeful that it will motivate future service scripting research. Below we provide a few avenues for future study. First, our research has focused on one particular type of interaction—face-to-face—in a particular industry—hospitality—and thus similar studies in other service contexts would be of value. For example, studies could examine how service script detection may differ in technology-mediated encounters such as online chat environments compared to face-to-face encounters. Similarly, they could test script detection across different service types, such as health care, retail, or professional services. Also, due to the novelty and exploratory nature of the study, future empirical research that validates our results would be useful. In particular, work that refines scales and/or uses other measures or methodologies to estimate service script detection is encouraged.

Additionally, research is needed that examines other issues related to service script detection. For example, does the employee's training level or experience have an effect on customers' ability to detect service scripts? Alternatively, is the effectiveness of the service script's design the most important factor? In particular, can customers detect when a complex service script is used that articulates many subroutines? Furthermore, studies that empirically examine the operational capabilities and outcomes associated with service scripting would be of interest. Much of the literature on service scripts suggests that it is a design tool that reduces the variability between encounters. One area of potential interest is to examine service scripts' ability to reduce the variability that customers inherently bring to services. Frei (2006) proposed that customers' involvement in the service process introduces variability that is not present in a manufacturing environment (e.g., customer request variability). She contends that it is the service organization's responsibility to decide how to handle this inevitable variability, be it through reduction or accommodation strategies (Frei 2006). We believe that service scripts are one potential method of automating the service encounter experience to a certain degree and are likely to result in a reduction of service variability by assuring a consistent service level across customers and employees. Empirical work that investigates such operational claims of variability reduction or service performance improvement would be of value to service operations researchers and practitioners. Perhaps of greatest importance for future research is the need to assess empirically the

potential implications of service script detection on customer perceptions of authenticity or quality. Since customers are able to detect when a service script is in use, it is important to examine if recognition of the script has an effect on their views of the service experience.

In general, more research is needed that focuses on understanding how customers perceive the encounter to improve service design and delivery (Chase and Dasu 2001; Dasu and Chase 2010). To address these types of topics, however, we believe one must look beyond just one discipline of study. We also believe that research in service operations, in particular studies that examine perceptual and behavioral implications of service design, need to consider more innovative means such as video experiments for testing research questions. In conclusion, we hope our study will motivate future cross-disciplinary research involving scripts and service design as well as promote the use of innovative methodologies such as video experiments to examine the dynamic nature of the service encounter.

References

Abelson, Robert F. (1976), ‘‘Script Processing in Attitude Formation and Decision Making,’’ in *Cognition and Social Behavior*, John S. Carroll and John W. Payne, eds. Hillsdale, NJ: Lawrence Erlbaum, 33-45.

Abelson, Robert F. (1981), ‘‘Psychological Status of the Script Concept,’’ *American Psychologist*, 36 (July), 715-729.

Ashforth, Blake E. and Yitzhak Fried (1988), ‘‘The Mindlessness of Organizational Behaviors,’’ *Human Relations*, 41 (April), 305-329.

Bateson, John E. G. and Michael K. Hui (1992), ‘‘Ecological Validity of Photographic Slides and Videotapes in Simulating the Service Setting,’’ *Journal of Consumer Research*, 19 (September), 271-281.

Bowen, John (1990), ‘‘Development of a Taxonomy of Services to Gain Strategic Marketing Insights,’’ *Journal of Academy of Marketing Science*, 18 (1), 43-49.

Chase, Richard B. and Sriram Dasu (2001), ‘‘Want to Perfect your Company’s Service? Use Behavioral Science,’’ *Harvard Business Review*, 79 (June), 78-84.

———— and Douglas M. Stewart (1994), ‘‘Make your Service Fail- Safe,’’ *MIT Sloan Management Review*, 35 (Spring), 35-44.

Cook, Lori S., David E. Bowen, Richard B. Chase, Sriram Dasu, Doug M. Stewart, and David A. Tansik (2002), ‘‘Human Issues in Service Design,’’ *Journal of Operations Management*, 20 (April), 159-174.

Cook, David P., Chon-Huat Goh, and Chen H. Chung (1999), ‘‘Service Typologies: A State of the Art Survey,’’ *Production and Operations Management*, 8 (September), 318-338.

Dallimore, Karen S., Beverley A. Sparks, and Ken Butcher (2007), ‘‘The Influence of Angry Customer Outbursts on Service Providers’ Facial Displays and Affective States,’’ *Journal of Service Research,* 10 (August), 78-92.

Dasu, Sriram and Richard B. Chase (2010), ‘‘Designing the Soft Side of Customer Service,’’ *MIT Sloan Management Review*, 52 (Fall), 1-7.

Flynn, Barbara B., Sadao Sakakibara, Roger G. Schroeder, Kimberly A. Bates, and E. James Flynn (1990), ‘‘Empirical Research Methods in Operations Management,’’ *Journal of Operations Management*, 9 (April), 250-284.

Frei, Frances X. (2006), ‘‘Breaking the Trade-Off between Efficiency and Service,’’ *Harvard Business Review*, 84 (November), 92-101.

Gioia, Dennis A. and Peter P. Poole (1984), ‘‘Scripts in Organizational Behavior,’’ *Academy of Management Review*, 9 (July), 449-459.

Gosserand, Robin H. and James M. Diefendorff (2005), ‘‘Emotional Display Rules and Emotional Labor: The Moderating Role of Commitment,’’ *Journal of Applied Psychology*, 90 (November), 1256-1264.

Grandey, Alicia A., Glenda M. Fisk, Anna S. Mattila, Karen J. Jansen, and Lori A. Sideman (2005), ‘‘Is ‘Service with a Smile’ Enough? Authenticity of Positive Displays During Service Encounters,’’ *Organizational Behavior and Human Decision Processes*, 96 (January), 38-55.

Grandey, Alicia (2003), ‘‘When the Show Must Go On: Surface and Deep Acting as Predictors of Emotional Exhaustion and Service Delivery,’’ *Academy of Management Journal*, 46 (February), 86-96.

Grandey, Alicia (2000), ‘‘Emotion Regulation in the Workplace: A New Way to Conceptualize Emotional Labor,’’ *Journal of Occupational Health Psychology*, 5 (January), 95-110.

Greenfeld, Karl T. (2011), ‘‘Taco Bell and the golden age of drivethru,’’ (accessed 26 May 2011), [available at: http://www.business week.com/magazine/content/11_20/b4228064581642.htm]

Groth, Markus, Thorsten Hennig-Thurau, and Gianfranco Walsh (2006), ‘‘Chapter 9: A Conceptual Model of the Effects of Emotional Labor Strategies on Customer Outcomes,’’ in *Individual and Organizational Perspectives on Emotion Management and Display Research on Emotion in Organizations*, Vol. 2, Wilfred J. Zerbe, Neal M. Ashkanasy, and Charmine E. J. Härtel, eds. Oxford, UK: Elsevier, 219-236.

Groth, Markus, Thorsten Hennig-Thurau, and Gianfranco Walsh (2009), ‘‘Customer Reactions to Emotional Labor: The Roles of Employee Acting Strategies and Customer Detection Accuracy,’’ *Academy of Management Journal*, 52 (October), 958-974.

Hennig-Thurau, Thorsten, Markus Groth, Michael Paul, and Dwayne D. Gremler (2006), ‘‘Are All Smiles Created Equal? How Emotional Contagion and Emotional Labor Affect Service Relationships,’’ *Journal of Marketing*, 70 (July), 58-73.

Hochschild, Arlie R. (1979), ‘‘Emotion Work, Feeling Rules, and Social Structure,’’ *The American Journal of Sociology*, 85 (November), 551-575.

Hubbert, Amy R., Annette Garcia Sehorn, and Stephen W. Brown (1995), ‘‘Service expectations: The consumer versus the provider,’’ *International Journal of Service Industry Management*, 6 (1), 6-21.

Lord, Robert G. and Mary C. Kernan (1987), ‘‘Scripts as Determinants of Purposeful Behavior in Organizations,’’ *Academy of Management Review*, 12 (April), 265-277.

Lovelock, Christopher H. and Jochen Wirtz (2007), *Services Marketing: People, Technology, Strategy*, Sixth edition. Upper Saddle River, NJ: Pearson Prentice Hall.

———. (1983), ‘‘Classifying Services to Gain Strategic Marketing Insights,’’ *Journal of Marketing*, 47 (Summer), 9-20.

Luong, Alexandra (2005), ‘‘Affective Service Display and Customer Mood,’’ *Journal of Service Research*, 8 (November), 117-130.

Mattila, Anna S., Alicia A. Grandey, and Glenda M. Fisk (2003), ‘‘The Interplay of Gender and Affective Tone in Service Encounter Satisfaction,’’ *Journal of Service Research*, 6 (November), 136-143.

McCallum, J. Richard and Wayne Harrison (1985), ‘‘Interdependence in the Service Encounter,’’ in *The Service Encounter*, John A. Czepiel, Michael R. Solomon, and Carol F. Surprenant, eds. New York University, Institute of Retail Management, 35-48.

McCarthy, Ian P., Leyland Pitt, and Pierre Berthon (2010), ‘‘Service Customization Through Dramaturgy,’’ in *Mass Customization: Engineering and Managing Global Operations*, Flavio S. Fogliatto and Giovani J. C. da Silveira, eds. London: Springer-Verlag, 43-64.

Mc-Coll Kennedy, Janet R., Catherine S. Daus, and Beverley A. Sparks (2003), ‘‘The Role of Gender in Reactions to Service Failure and Recovery,’’ *Journal of Service Research*, 6 (August), 66-82.

Mohr, Lois A. and Mary Jo Bitner (1991), ‘‘Mutual Understanding between Customers and Employees in Service Encounters,’’ *Advances in Consumer Research*, 18 (January), 611-617.

Nunnally, Jum C. (1967), *Psychometric Method*. New York: McGraw-Hill.

Peter, J. Paul (1979), ‘‘Reliability: As Review of Psychometric Basic and Recent Marketing Practices,’’ *Journal of Marketing Research*, 16 (February), 6-11.

Sanders, Peter (2006), ‘‘Takin’ Off the Ritz—A Tad – Chain Relaxes Service ‘Rules’ To Rely on Workers’ Judgment; No More Escorts to the Restroom,’’ *Wall Street Journal*, June 23, p. B1.

Schau, Hope Jensen, Stephanie Dellande, and Mary C. Gilly (2007), ‘‘The Impact of Code Switching on Service Encounters,’’ *Journal of Retailing*, 83 (1), 65-78.

Schmenner, Roger W. (1986), ‘‘How Can Service Businesses Survive and Prosper,’’ *Sloan Management Review*, 27 (Spring), 21-32.

Seawright, Kristie K. and Scott E. Sampson (2007), ‘‘A Video Methodology for Empirically Studying Wait-Perception Bias,’’ *Journal of Operations Management*, 25 (August), 1055-1066.

Shostack, G. Lynn (1987), ‘‘Service Positioning Through Structural Change,’’ *Journal of Marketing*, 51 (January), 34-43.

Smith, Ruth Ann and Michael J. Houston (1983), ‘‘Script-Based Evaluations of Satisfaction with Services,’’ in *Emerging Perspectives in Service Marketing*, Leonard L. Berry, G. Lynn Shostack, and Gregory D. Upah, eds. Chicago: American Marketing, 504-508.

Solomon, Michael R., Carol F. Surprenant, John A. Czepiel, and Evelyn G. Gutman (1985), ‘‘A Role Theory Perspective on Dyadic Interactions: The Service Encounter,’’ *Journal of Marketing*, 49 (Winter), 99-111.

Stewart, Douglas M. (2003), ‘‘Piecing Together Service Quality: A Framework for Robust Service,’’ *Production and Operations Management*, 12 (June), 246-265.

Sutton, Robert I. (1991), ‘‘Maintaining Norms about Expressed Emotions: The Case of Bill Collectors,’’ *Administrative Science Quarterly*, 36 (June), 245-268.

——— and Anat Rafaeli (1988), ‘‘Untangling the Relationship between Displayed Emotions and Organizational Sales: The Case of Convenience Stores,’’ *Academy of Management Journal*, 31 (September), 461-487.

Tansik, David A. and William L. Smith (1991), ‘‘Dimensions of Job Scripting in Services Organizations,’’ International *Journal of Service Industry Management*, 2 (1), 35-49.

Tsikriktsis, Nikos (2005), ‘‘A Review of Techniques for Treating Missing Data in OM Survey Research,’’ *Journal of Operations Management*, 24 (December), 53-62.