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# **An Exploratory Study about Developing Electronic Service Quality Measure for Visual Components**

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## **ABSTRACT**

*The Internet has become a major channel for selling a myriad of products and services. To make the on-line shopping experience more vivid, retailers frequently portray product images and video clips on their Web-sites. Although the dimensions of e-service quality have been studied in various on-line contexts, research focusing on visual images is scant. The purpose of this exploratory study is to examine how consumers evaluate video clips portraying experiential services in the context of commercial Web-sites. Our results indicate that consumers evaluate video clips based on six distinct dimensions: user interaction, aesthetics, customization/personalization, assurance/trust, flexibility and a novel dimension called virtual human interaction.*

## **INTRODUCTION**

The Internet provides an excellent medium for delivering experiential aspects of the product or service bundle via video clips, MP3, music, and interactive games (Voss, 2003). Visual appearance of products and simulated physical store environments are becoming an increasingly important feature on company websites (Reichheld & Scheffer, 2000; Burke, 1996). Video clips portraying physical products and/or customer-employee interactions can be an effective medium for both maintaining existing on-line customers and for attracting new customers (Leong, Xueli, & Stanners, 1998).

Prior researcher has highlighted the importance of visual appearance and multi-media on commercial Websites (Sullivan & Walstrom, 2001; Parasuraman, Zeithaml, and Malhotra, 2005). For example, Sullivan and Walstrom (2001) found that the visual appearance of the website is critical for enhancing trust and safety in on-line transactions. In addition, Parasuraman, Zeithaml, and Malhotra (2005) discovered a significant relationship between graphic styles and customers' e-service quality (e-SQ) perceptions.

While prior studies of electronic service quality have examined the dimensions of e-SQ in various on-line contexts, research focusing on visual components is scant. To bridge that gap, this study examines how consumers evaluate visual images, in particular, video clips in the context of hotel websites.

## **THEORETICAL FOUNDATION**

Retailers and service providers gradually pay more attention to the visual and multi-media component on their websites as they realize that tangible and physical cues (i.e., the servicecape) are strongly linked to customer satisfaction and behavioral responses (Bitner 1992; Wirtz & Bateson, 1999). The unique features offered via multimedia, such as animation, sound, and video clips provide rich content that appeals to multiple senses (Hansell, 1998; Coyle & Thorson, 2001). By enhancing the richness of customers' online experiences (Sousa & Voss, 2006), retailers can create a positive impression of the company and its service quality (Burke, 2002).

Visuals on the website can be static (image) or animated, and video clips. Video clips are multiple frames, each of which can be represented by a multidimensional scene in the feature space including visual and audio features on the Internet (Zhou, Dao, & Kuo, 2002). Importantly, Klein (2003) revealed that providing updated information in an interactive format (i.e., audio tapes or video clips) is crucial for retaining first time visitors on the Internet.

A number of researchers have expanded our knowledge of electronic service quality via two avenues; one using the traditional SERVQUAL as a basis (Cox & Dale, 2001; Gronroos, Heinonen, Isoniemi, & Lindholm, 2000; Kaynama & Black, 2000; Kettinger & Lee, 1997; Parasuraman & Grewal, 2000; Sullivan & Walstron, 2001; Voss, 2003; Wang, Xie, & Goh, 1999; Watson, Pitt, & Kavan, 1998; Zeithaml, Parasuraman, & Malhotra, 2000) and the other creating new categories for e-service (Janda, Trocchia, & Gwinner, 2002; Liljander, van Riel, & Pura, 2002; van Riel, Liljander, & Jurriens, 2001; Liu & Arnett, 2000; Szymanski & Hise, 2000).

Through a content analysis of the relevant literature, the authors found several key attributes and conceptual dimensions of electronic service quality. In order to test these dimensions, a two-step process was employed. We first conducted a qualitative study (focus group interviews) followed by a quantitative main study (survey).

## **METHOD**

A convenience sample of twelve graduate students (five males and seven females) was used for in-depth interviews. Participants were pre-screened for their actual viewing of video clips on commercial websites during the past twelve months. The interviews lasted between 30 to 40 minutes. Five video clips from a well-known hospitality company were presented to participants at the beginning of the interview. This hospitality company is listed on Fortune 500 companies list and five video clips were taken from its sub-brand websites each aiming at different market segments (i.e., economy, mid-scale, extended stay).

The in-depth interview protocol was adapted from Zeithaml, Parasuraman, and Malhotra (2000). Interview procedures followed Lincoln and Guba (1985)'s five step process. The results of our qualitative study suggested that consumers evaluate video clips based on six quality dimensions: user interaction, flexibility, assurance and trust, aesthetics, customization and personalization, and virtual human interaction. The human interaction component is a novel dimension.

Based on these dimensions, a survey instrument was developed. A set of 33 items was generated and survey respondents were asked to rate the level of their perceptions of each item on a five-point Likert type of scale, including a "Not Applicable (N/A)" option

(Liljander, van Reil, & Pura, 2002). The study sample was composed of travelers waiting for their planes at the Gainesville Regional Airport in Florida. Participants were pre-screened for their actual usage of Web-sites with video clips. One of the five video clips was randomly shown to each subject. Two hundred travelers (with about 9.5% refusal rate) completed the survey.

### FINDINGS

Principal component analysis with varimax rotation was employed to examine the factor structures. The Kaiser-Meyer Olkin (KMO) measure of sampling adequacy was 0.837, suggesting that factor analysis technique is appropriate. The factor analysis resulted in six factors, which, as a group, explained 65.7% of the total variance. Items with factor loading scores of at least 0.50 were retained for each factor. Twenty-one out of the thirty-three E-SQ items loaded on one of the six factors. The results of this factor analysis are shown in table 1.

Table 1. EFA Results for E-SQ Dimensions of Video Clip

	<i>Item</i>	<i>Factor 1</i>	<i>Factor 2</i>	<i>Factor 3</i>	<i>Factor 4</i>	<i>Factor 5</i>	<i>Factor 6</i>
User	UIN7	.822					
Interaction	UIN8	.821					
	UIN4	.768					
	UIN6	.736					
	UIN2	.683					
	UIN5	.682					
	UIN3	.630					
	ATT2	.563					
	ATT3	.538					
Aesthetics	AES3		.890				
	FLE4		.876				
	AES4		.833				
	FLE3		.801				
	CPN6		.650				
Customization / Personalization	CPN2			.847			
	CPN3			.832			
	CPN4			.593			
	CPN1			.503			
Assurance / Trust	ATT5				.884		
	ATT6				.679		
	ATT4				.656		
	ATT1				.605		
Virtual Human Interaction	DHI2				.821		
	DHI3				.681		
	DHI1				.621		
Flexibility	FLE2						.700
	FLE1						.695
Eigenvalues		5.393	4.229	3.131	2.843	2.745	2.008
% of variance explained		17.4	13.6	10.1	9.2	8.9	6.5
Alpha		.92	.89	.87	.81	.80	.63

The factors were labeled as followed: user interaction, aesthetics, customization/personalization, assurance/trust, virtual human interaction, and flexibility. Detailed items description and the result of reliability test were presented in table 2. All 6 factors showed excellent internal consistency, with Croanbach's alpha of .75 or higher.

Table 2. Result for E-SQ of Video Clip

<i>Construct</i>	<i>Item</i>	<i>Item Description</i>	<i>Mean</i>	<i>SD</i>	<i>Alpha</i>
User	UIN1	Video clip is available	3.98	1.105	.903
Interaction	UIN2	Video clip works correctly	4.37	.929	
	UIN3	Video clip provides relevant information on the hotel and its surrounding area	4.31	.960	
	UIN4	Video clip is easy to find	4.33	.925	
	UIN5	Video clip shows up quickly	4.32	.924	
	UIN6	Video clip is updated	4.29	.958	
	UIN7	Video clip is easy to understand	4.47	.840	
	UIN8	Video clip is simple to use	4.48	.888	
	Flexibility	FLE1	Choice of download modes	3.89	1.105
FLE2		Choice of information	4.30	.938	(.843*)
FLE3		Choice of music in video clip	3.07	1.229	
FLE4		Choice of narrator in video clip	3.28	1.202	
Assurance / Trust	ATT1	Brand name of a hotel appears on video clip	3.98	1.011	.855
	ATT2	Video clip provides exact information on the hotel	4.27	.905	
	ATT3	Video clip provides visual information on the hotel	4.48	.870	
	ATT4	Hotel's amenities shown in video clips match my past experiences	4.14	.955	
	ATT5	Hotel's amenities shown in video clips match my perception of the brand	4.11	.937	
	ATT6	Hotel's amenities shown in video clips reflect the reputation of the brand	4.17	.911	

Aesthetics	AES1	Resolution of video clip	4.29	.875	.750
	AES2	Size of video clip	4.03	.951	
	AES3	Background music in video clip	3.47	1.077	
	AES4	Narrator in video clip	3.48	1.136	
	AES5	Free of distractions	4.23	1.025	
Customization / Personalization	CPN1	Video clip is customized to meet your needs	3.80	1.030	.828
	CPN2	Options to view amenities that interest you	4.14	.926	
	CPN3	Options to view services that interest you	4.18	.896	
	CPN4	Options to watch various activities	3.82	1.039	
	CPN5	Options for languages	3.61	1.219	
	CPN6	Options for narrators	2.95	1.297	
	CPN7	Customer information is stored to facilitate future transactions	3.42	1.260	
Virtual human interaction	DHI1	Video clip shows services provided by employees in the hotel	3.83	1.087	.800
	DHI2	Video clip shows interactions between customers and staff members	3.53	1.052	
	DHI3	Video clip shows guest activities available at the hotel	4.09	1.023	

\* Cronbach Alpha after deleting two items (i.e., choice of information; choice of download)

## DISCUSSION

This study extends prior research in e-SQ dimensions by examining how consumers evaluate video clips commonly available on commercial Web sites. The use of visuals is particularly attractive when selling experiential services such as hotels.

The ability to view the physical environment prior to purchase reduces perceived risk, and therefore has a positive impact on purchase intent (Murphy, Forrest, Wotring, & Brymer, 1996; Reichheld & Schefer, 2000). Our findings also indicate that portraying showing actual encounters with employees helps to further reduce uncertainty associated with experiential services. As a result, it is not surprising that retailers and service operators frequently include video clips on their websites. The results of this exploratory study indicate that consumers evaluate video clips based on six distinct dimensions: user interaction, aesthetics, customization/personalization, assurance/trust, flexibility and virtual human interaction.

The finding of the brand-new dimension, the virtual human interaction on video clips, is worth noting. Previous research in services advertising clearly shows that employee behaviors can be an effective way of communicating intangible service benefits (Mittal, 1999). For example, the professional appearance of customer-contact employees or the use of up-to-date equipment might lead consumers to believe that a hotel's services are of high quality (Mittal, 1999), thus reducing pre-purchase risk (Legg & Baker, 1987; Mittal, 1999).

Overall, the present findings offer an explanation of visual service quality using customers' perception ratings. In the future, a means-end chain approach could be examined to determine cognitive structures driving on-line customers' evaluations on these visual components (Zeithaml, Parasuraman, & Malhotra, 2000).

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