

# The impact of online service quality on e-engagement in the context of e-tutoring services

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## ABSTRACT

This study investigates (1) the effect of online service quality (ease of use, design, reliability and security/privacy) on user engagement as measured by two of its major constituents: consumer satisfaction and focused attention (2) the degree to which focused attention influences satisfaction in the context of e-learning. To explore these relationships in this context, an online questionnaire was completed by 224 consumers enrolled in an online tutoring service. Results were analyzed using structural modelling techniques. Major findings show that online service quality strongly affects satisfaction and focused attention, however, no interdependence between satisfaction and focused attention was found. While the impact of online service quality on engagement has already been established in a business environment, this study adopts a multidisciplinary approach to extend the body of knowledge to online educational services, a context whose study crosses various disciplines (marketing, commerce and education) normally addressed as separate subjects. It confirms the impact of online service quality on customer satisfaction and focused attention in the context of e-tutoring services, where commercial imperatives apply and a captive clientele is not guaranteed.

**Keywords:** Online service quality, E-tutoring, Focused attention, Satisfaction, E-engagement, Online education services

## 1. INTRODUCTION

Since its advent, the Internet has over the years become a full-fledged channel for the trade of products and services in a self-service distribution mode, carried out without face-to-face contact [1], including educational services. Founded in 2014, Gradeslam (GS) is a Canadian educational technology company, "powering personalized learning", through an online tutoring platform offering a suite of tools for schools, students and educators. According to gradeslam.org's [2] site description, in this learning environment "students receive one-to-one support from certified educators" in the comfort and privacy of the place of their choice without any fear of peer judgement as the service is confidential. "The service places contextualized, interactive academic support at students' fingertips and encourages increased student engagement both inside and outside of the classroom". In commercial contexts, it is shown that online

service quality is a key business differentiator adding experiential value for consumers [3], with increased satisfaction [4-5] and user engagement [6]. While these direct outcomes are well established in the context of goal-oriented purchasing, the e-learning literature shows indirect relations where the flow construct mediates the impact of online service quality on learning and the learner's satisfaction, and where focused attention is either a dimension or antecedent of flow [7-8]. As described, Gradeslam offers an online tutoring service with a strong relational aspect, and learning as a central objective for consumers. Hence Gradeslam is both a commercial service with a primary learning objective, and, since students interact with tutors via the website, its core underlying value is experiential [8]. In accordance with the online experience literature, this research considers that the learner engagement generated by the tutoring platform (i.e., e-learning website) is derived from the online service quality. Accordingly, the goal of this study is to assess how online service quality impacts the learner engagement through satisfaction and focused attention in the context of online tutoring services. The next section defines the multidimensional construct of online service quality, as well as the outcome variables of consumer's satisfaction and focused attention, which are two major components of online user engagement [6].

## 2. THEORETICAL FOUNDATIONS

According to Chan et al. [9], there are three possible ways to analyze user online behavior in the literature, namely according to intention, adoption, and/or continuance. The Internet literature shows that online service quality impacts them all, and primarily continuance [10], which is a concept closely linked to loyalty [3] and retention [11] and in accordance with the relationship marketing paradigm. These concepts will be covered in this section, along with their relationship to satisfaction and focused attention in both e-commerce and e-learning settings.

### Online service quality

Service quality can be described as the gap between consumers' expectations and perceptions [12-13]. Existing literature has shown that service quality leads to customers satisfaction and loyalty [11], and that it is a strong indicator of business performance [14-15] and an important business differentiator to gain competitive advantage [3]. With the advent of the Internet, a vast body of research has been more recently dedicated to

defining and measuring online service quality [16-17-18-19]. While the literature shows consensus on the multidimensional aspect of the construct, the consensus does not extend to the dimensions it should comprise [17-14]. To go beyond this literature inconsistency, our study has selected the most common and recurring dimensions among the existing scales which also correspond to the dimensions of the Bressolles Netqu@1 scale [17]: Ease of use, (Website) Design, Reliability and Security/privacy.

#### **Ease of use**

Ease of use refers to the ability of the website to provide information to visitors in a sufficiently clear, precise and understandable manner [20]. It is an essential feature of computer technologies accessed by consumers [21-22]. Ease of use is therefore an indispensable dimension of services provided electronically [23]. For Dabholjar [24], ease of use is a major component of service quality and a key element in consumer satisfaction. In short, this dimension is reflected in the way the user perceives and interacts with the site.

#### **Design**

For Bressolles and Durrieu [23], the design of a website refers to "the wealth of representation of the mediated environment, created by its formal characteristics: in other words, its graphics, colors, use of images, icons, animation, videos, etc. All these elements make it possible to reproduce a virtual space [25]. Szymanski and Hise [26] show that "in addition to security, site design occupies a more prominent role in consumer e-satisfaction assessments". In an e-commerce context, Kim et al. [27] show a positive relationship between website design and satisfaction. Chung and Shin [28] find that website design directly influences satisfaction while indirectly impacting commitment, which are important dimensions in a relational context [29].

#### **Reliability**

Reliability refers to the ability of the firm to deliver the right product or service under the promised conditions and timeframes [25]. In the same vein, and in addition to demonstrating the impact of reliability on satisfaction, Bressolles and Durrieu [23] define online reliability as "the ability of the online vendor to deliver on its promises, to fulfill the terms of the exchange". With regards to reliability, Boulaire and Matthieu [30] also mention the possibility for the online consumer to order or download the products / services, 24 hours a day, 7 days a week, similar to that offered by Gradeslam.org through "24/7 live academic help".

#### **Security/privacy**

The security and confidentiality of personal information protecting privacy is essential for consumers using a commercial service online [31]. Security refers to the possibility that a third-party might access the consumers personal information, whereas privacy refers to possible misuse of the consumer's personal information [32]. Confidentiality of personal information refers to protection against unauthorized access, illegal distribution or the fraudulent use of personal information made possible by new technologies [25]. In accordance with its criticality in online transactions and interactions, Security/privacy has been established as a key determinant to e-satisfaction [26].

#### **E-engagement**

According to Roberts [33], engagement in an online context is the most important process that companies must deliver to gain competitive advantage. Engagement is a key variable in relationship marketing [34-35]. Even though the literature shows

consensus around the strategic imperative of user engagement to generate better business performance, there are, however, different definitions and conceptualizations of the phenomenon of online consumer engagement. According to Evans [36], e-engagement means that the consumer becomes active instead of a passive receiver. Vivek et al. [37] distinguish two possible interpretations. The first sides with practitioners who view e-engagement as a set of elements that encourage repeat buy behavior and reinforce attachment to a brand. The second interpretation takes the perspective of academics who view online engagement as a measure of the intensity of the client's commitment with the organization and with other clients in a mutual knowledge exchange process (C2C). According to Brodie et al. [38], the interpretation of e-engagement varies depending on the actors (consumers, students) and objects (brand, service, mobile application) related to the nature of the engagement. Some researchers conceptualize engagement as a one-dimensional construct being either cognitive, affective, or behavioral [39-40], and others define it as bi-dimensional: cognitive and affective [41-42]. However, many authors argue for a multidimensional perspective including cognitive, affective and behavioral components [43-44]. O'Brien [6] suggested that user engagement with online shopping is a multidimensional construct including cognitive and affective dimensions: focused attention, durability, aesthetics and usability. Endurability was measured by O'Brien [6] with the following items: "likelihood to recommend the shopping Website to others, perception of the shopping experience as successful/rewarding/worthwhile and working out as planned". The similarity between the construct of endurability with satisfaction is clear as all items correspond to the result of a positive online subjective experience. Therefore, relying on that conceptualization, we have retained satisfaction and focused attention as the affective and cognitive dimensions respectively of e-engagement.

#### **Focused attention**

While online service quality focuses on user-perceived site/computer-mediated system attributes to derive user beliefs and attitude toward the technology for its acceptance [21], numerous authors have drawn their attention on what is experienced by the user at the cognitive and emotional levels (e.g., focused attention, skills challenge, enjoyment), identifying the state of flow as the optimal online experience [7]. Focused attention, defined as the concentration of mental activity [45], was a key dimension for O'Brien and Toms [42] engagement with technology. They note that participants were highly focused and that they were surprised at how much time passes. Wells and Matthews [46] state that attention may be based on the cognitive judgements people make about the relevance of specific stimuli to themselves or their tasks. Focused attention on the task has been shown as a key dimension of the flow concept by numerous authors [7-47]. Similarly, others have called it concentration [48-49] or cognitive absorption [50-51] or "convergence of flow" [52-47].

#### **Online satisfaction**

Almost without exception, researchers in the areas of job, life, and commerce satisfaction agree that satisfaction is a function of an initial standard and some perceived discrepancy from the initial reference point [53]. Although developed in an offline context, this definition of satisfaction is adopted by many authors dealing with satisfaction in an online context. According to Turban et al. [54], satisfaction is one of the most important consumer reactions in an online environment in a B2C context. Indeed, in e-commerce, satisfaction has major consequences for

organizations, such as lower average sensitivity to price and increased consumer loyalty, which in turn drives positive word of mouth and intention to re-purchase [16-55].

### **Online service quality, satisfaction and focused attention**

Many researchers have established the positive impact that quality of online service has on e-satisfaction [56-25] in an e-commerce context. As a result, improving online service quality can enable online businesses to be more efficient and attractive, and can enable them to achieve a greater satisfaction and retention of their consumers [11]. The literature on online experience across various domains (learning, commercial), has demonstrated that a compelling online experience is closely linked to satisfaction [57].

Very little literature has examined the relationships between online service quality and focused attention or the link between focused attention and satisfaction. However, Choi et al.[58] found that in an e-learning context, website content and ease of use were two key variables influencing flow. Further, flow had a strong impact on learning outcomes [57]. In the context of distance education, Leong [50] found that cognitive absorption - a construct very similar to focused attention, influences satisfaction. Ho and Kuo [48] showed the positive impact of computer attitude on flow experience and learning outcomes. The literature in the field of virtual environment explored "holistic experiences with technology as captured in constructs such as enjoyment and flow, which are important explanatory variables in technology acceptance theories" [51]. Focusing on flow is like looking at the flipped side of the online service quality, in what service quality brings as a result, meaning a compelling online experience. In what used to be called hypermedia and computer-mediated environment in earlier times of the Internet, Hoffman and Novak [7] showed that flow impacts consumer learning, exploratory behavior and positive subjective experience (satisfaction). Chung and Shin [28] also considers the online experience through the dimensions of flow (enjoyment, telepresence, focused attention, engagement and time distortion) and establishes a direct link with satisfaction and achievement in a virtual learning environment. To sum it all up, few works have directly examined the relationship between focused attention and student satisfaction per se in online learning environments. However, we have covered numerous studies using a variety of constructs that are conceptually very closely connected to focused attention (e.g.; concentration, cognitive absorption, flow) and all have an impact on user satisfaction both for commercial and learning oriented goals, which suggests that this relationship should be investigated further in the specific context of online tutoring services. Based on this literature review, the following hypotheses are formulated:

H1: In the context of e-tutoring services, online service quality has a positive impact on satisfaction

H2: In the context of e-tutoring services, online service quality has a positive impact on focused attention

H3: In the context of e-tutoring services, focused attention has a positive impact on satisfaction.

### **3. METHODOLOGY**

The following section details sample, data collection procedures and the measurement scales used in this study.

#### **Sample, procedures and data collection**

We partnered with Gradeslam.org, a large online education service providing online tutoring services and surveyed their

English-speaking Canadian customers. An email was sent to a randomly selected sample of customers who had used the online education service in the last two months, inviting them to participate in the online survey. This tight timeframe was deemed necessary because the web platform of the service underwent major changes three months prior to the survey. The questionnaire was developed by the research team and pretested on 16 users of the service to validate the measures and ensure that the questions/statements were clear and well understood. The time required to complete the survey was then estimated at 15 minutes. Final data was collected in cooperation with the partner who had a database of users and their email addresses. Mailing to 706 users was performed. As an incentive to increase response rate, participants were automatically entered in a draw to win a tablet and a six-month free subscription to the service. A link to the questionnaire was included in the invitation. A total of 224 valid surveys were completed for a response rate of 26%. Online surveys provide a number of advantages compared with their traditional counterparts [59], especially in instances where the service is provided online only. In addition to being time-efficient and flexible for respondents, they eliminate concerns about interviewer bias and geographical boundaries, as respondents can be reached anywhere in the world. Respondents showing straightlining behaviour (repetitive patterns) in their answers were deleted from the final sample [60].

#### **Measurement of constructs**

To maximize the content validity of the measures, scales developed by other scholars were used and adapted to the context of the study at hand. All were 7-point Likert-type scales ranging from (1) 'strongly disagree' to (7) 'strongly agree'. Online service quality was assessed as a second order construct [17] with four dimensions: ease of use, design, security/privacy and reliability. It was measured using items from the scale developed by Bressoles [17]. Items relating to online satisfaction were adapted from Chen and Wells [61], while those relating to focused attention were drawn from O'Brien [6].

## **4. RESULTS**

#### **Sample characteristics and psychometric properties of the scales**

Respondents were mostly female (67.9%), between 18 and 23 years old (83%) and 46% had completed a high-school degree. Close to 50% of the sample (48.4%) indicated that they had used the online education service more than three times in the last year. Finally, for 65% of the respondents, mathematics was the topic for which they needed help for when using the service.

The psychometric properties of the scales and the test of the hypotheses with regard to the structural model were analyzed using EQS 6.1 [62]. Composite reliability values, factor loadings and average variance extracted (AVE) were calculated to assess the reliability of the measures (see Table 1). Results show that composite reliability values are all above 0.90, well above the recommended threshold of 0.70 [63-64]. The factors loadings ( $\lambda$ ) are all above 0.75 and the AVE for all the constructs ranged from 0.70 to 0.91, above the 0.50 threshold recommended by Fornell and Larcker [64]. The AVE for each construct was also greater than the squared correlation coefficients between factors, as recommended by Fornell and Larcker [64] as evidence of discriminant validity.

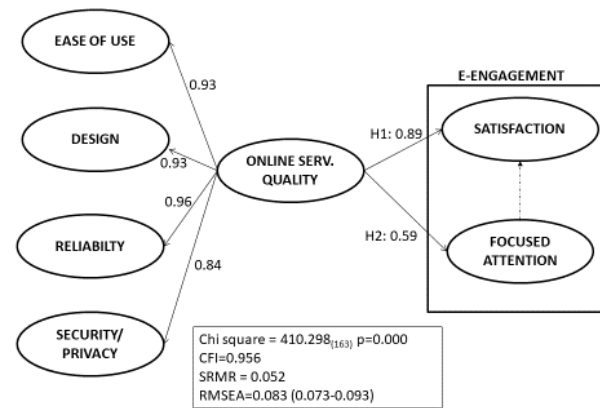
Table 1 - Reliability measures of the scales

Constructs and items	Comp. Reliab.	Factor loading	AVE
<b>Online service quality</b>	<b>0.96</b>		<b>0.87</b>
<b>-Ease of use</b>			
-It's easy to search for information on GradeSlam		0.93	
-GS's website is easy to navigate		0.95	
-The organization and layout of GS's website facilitate the search for information		0.93	
-The layout of GS's website is clear and simple		0.92	
<b>-Design</b>	<b>0.91</b>		<b>0.84</b>
-GS's website is creative		0.89	
-GS's website has an attractive appearance		0.94	
<b>-Security/privacy</b>	<b>0.96</b>		<b>0.91</b>
-I am confident in the security on GS's website		0.96	
-I feel like my privacy is protected on GS's website		0.98	
-I trust the website's administrators will not misuse my personal information		0.92	
<b>-Reliability</b>	<b>0.93</b>		<b>0.82</b>
-The service is delivered by the time promised by GS		0.93	
-You get what you purchased from GS		0.92	
-You get tutoring help quickly when you login		0.87	
<b>-Satisfaction</b>	<b>0.95</b>		<b>0.85</b>
-I feel like browsing GS's website is a good way for me to spend my time		0.91	
-I'm satisfied with the service provided by GS		0.95	
-I would like to visit GS's website again in the future		0.91	
<b>-Immersion</b>	<b>0.92</b>		<b>0.70</b>
-I was so involved in my task using GS that I lost track of time		0.85	
-I blocked out things around me when I was using GS		0.87	
-When I was using GS, I lost track of the world around me		0.86	
-The time I spent on GS's website just slipped away		0.85	
-During this tutoring session I let myself go		0.76	

**SEM analysis and hypotheses testing**

The adequacy of the structural model was then estimated ( $\chi^2 = 410.298_{(163)}$ ,  $p = 0.000$ ; CFI = 0.956; SRMR = 0.052; RMSEA=0.083 (0.073 – 0.093)). According to the parameters recommended by Hu and Bentler [65] for CFI (cut-off value of 0.95) and SRMR (cut-off value of 0.08) to supplement chi-square tests, the proposed model fits the data quite well<sup>1</sup>. Turning to hypothesis testing, the results show that online service quality (second-order construct) directly leads to satisfaction ( $\gamma = 0.89$ ,  $p < 0.05$ ) lending support to H1. Second, online service quality also influences focused attention ( $\gamma = 0.59$ ,  $p < 0.05$ ) as proposed by H2. However, contrary to H3, no association between focused attention and satisfaction with the online education service was found. Turning to the second-order construct of service quality, all four dimensions are strongly associated with online service quality with significant  $\gamma$  ranging from 0.84 (security/privacy) to 0.96 (reliability). Results are presented in Figure 1.

Figure 1: Research model and results (standardized coefficients)



**5. DISCUSSION AND CONCLUSION**

This study is, to the best of our knowledge, the first to address the impact of online service quality as a multidimensional construct on e-engagement in the context of e-tutoring services. Adopting a multidisciplinary perspective, its main contribution lies in that it spans research boundaries by extending Choi et al., [58] works on online training while adding online education services to the literature on online service quality in a B2C merchant environment, validating the impact of online service quality on satisfaction and focused attention in the context of e-tutoring services. Contrary to expectations, focused attention did not significantly impact satisfaction and hypothesis H3 is therefore not supported. This may result from the inconsistent conceptualization of focused attention, found in the literature. In effect, some authors consider an indirect relationship between focused attention and satisfaction, mediated by perceived usability [6]. Furthermore, focused attention is sometimes called concentration [48], or cognitive absorption [50] and is being considered either as a full dimension of flow, or as an antecedent of flow [7] while still influencing positive affect/positive subjective experience/attitude [8-57]. Hence, as O'Brien and Toms [42] show that both focused attention and satisfaction are dimensions of e-engagement in e-commerce, the present study's

<sup>1</sup> The RMSEA is more sensitive to sample size than SRMR and is thus inflated here (Hu and Bentler, 1999).

results offer an interesting validation of the impact of online service quality on e-engagement in the peculiar context of commercial online tutoring services for which the primary goal is learning. The results of the study have also some key implications for e-tutoring services. They emphasize the importance of the quality of the web interface to engage learners in this environment.

This study bears some limitations that restrict our ability to generalize based on findings but which provide opportunities for future research. First, it is important to note that this study was conducted in a developed country (Canada) where customers are open to e-learning and readily embrace this new technology. The results of this study might then not be generalized to emerging and developing countries where consumers are confronted to different environmental contingencies (e.g. limited wireless Internet infrastructure). Finally, considering only two dimensions of e-engagement is a limit that should be addressed in future research, along with exploring if the results also apply in a non-commercial e-learning context

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