

Association for Information Systems AIS Electronic Library (AISeL)

AMCIS 2010 Proceedings

Americas Conference on Information Systems
(AMCIS)

8-2010

Peer-to-Peer Service Quality and Its Consequences in Virtual Communities

Aku Valtakoski

Aalto University School of Science and Technology, aku.valtakoski@tkk.fi

Juhana Peltonen

Aalto University School of Science and Technology, juhana.peltonen@tkk.fi

Mikko O.J. Laine

Aalto University School of Science and Technology, mikko.laine@tkk.fi

Follow this and additional works at: <http://aisel.aisnet.org/amcis2010>

Recommended Citation

Valtakoski, Aku; Peltonen, Juhana; and Laine, Mikko O.J., "Peer-to-Peer Service Quality and Its Consequences in Virtual Communities" (2010). *AMCIS 2010 Proceedings*. 552.

<http://aisel.aisnet.org/amcis2010/552>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2010 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Peer-to-Peer Service Quality and Its Consequences in Virtual Communities

Aku Valtakoski

Software Business Lab, Aalto University School of
Science and Technology
aku.valtakoski@tkk.fi

Juhana Peltonen

Software Business Lab, Aalto University School of
Science and Technology
juhana.peltonen@tkk.fi

Mikko O.J. Laine

Software Business Lab, Aalto University School of Science and Technology
mikko.laine@tkk.fi

ABSTRACT

Virtual communities are an increasingly popular way to conduct business over the Internet. However, from the service provider's point of view they pose special challenges. In particular, unless the provider itself engages in content or service provision, the service relies entirely on its members for provision of services. The members should thus be seen as resources for service provision. This type of networked service production system implies challenges in terms of service quality management and, subsequently, value creation for community members. This paper explores these issues by revisiting service marketing and service operations literature on service quality. Our analysis of the literature indicates that firms facilitating virtual communities need to ensure the quality of their service by not only ensuring technical quality but also by nurturing the social aspects of the community that have an impact on the willingness of community members to provide service to each other.

Keywords

Virtual community, service quality, peer-to-peer, service production system

INTRODUCTION

Leading firms in the Web 2.0 phenomenon such as Facebook, Twitter, MySpace, Habbo and YouTube draw hundreds of millions of users to participate in virtual communities. These communities depend on a service provider to develop and maintain a technological platform, which enables communication between the members of the community, as well as other services. However, virtual communities often rely heavily on the content and services provided by the community itself. Different purposes for virtual communities include collaboration (e.g. SourceForge, Skype), creation and maintenance of contacts (e.g. LinkedIn, Plaxo), gaming (e.g. World of Warcraft), sharing information (e.g. Wikipedia, Google Earth), and enabling consumer-to-consumer retailing (e.g. eBay, Amazon) (Messerschmitt et al., 2008).

From the perspective of the service provider, building a commercially successful virtual community poses a specific challenge. The value of the community to its members often depends on the services provided by members of the community to other members, and subsequently has a direct impact on the value of the community to potential advertisers and third-party content creators. Yet, the service provider cannot directly affect the quality of services – the general satisfaction of the members of a virtual community with the community. As indicated by Hofacker et al. (2006), much of the extant research on e-services has been directed towards e-services which are complements or substitutes to existing offline services, for example e-commerce. In such a setting, the service provider has much more control over the quality of the service compared to virtual community services.

Additionally, despite the extensive research on service quality in the Internet context, most of it has mostly concentrated on the technical aspects of web sites (e.g. Kuo, 2003; Santos, 2003; Yang and Jun, 2002; Zhang and Prybutok, 2005). Furthermore, most of the papers have considered service quality in commercial web sites, and online purchasing or “e-tailing” (Zeithaml et al., 2000, 2002; Parasuraman et al., 2005). The quality of community-based services has been analyzed only in relation to these commercial communities (Wiertz and de Ruyter, 2007; Wasko and Faraj, 2005). Thus, in contrast to Wiertz and de Ruyter (2007) and Yen and Hsu (2006), who discuss communities related to B2C and B2B e-commerce sites, we analyze service quality of a commercial virtual community. In other words, we are interested in communities that provide value to its own members, which is facilitated by web sites managed by a service provider. In these cases, consumer-to-consumer (C2C) service actually becomes the core offering of the firm. In summary, what is missing is an analysis of

determinants of perceived service quality of a virtual community when viewing them as networked service production systems (cf. Hofacker et al., 2006).

This paper explores the issues of service quality and value creation in a virtual community where the community members bear the main responsibility of providing the service instead of the service provider itself. To explore these issues, we assess how the factors impact an incumbent service quality framework, ES-QUAL (Parasuraman et al., 2005), which is based on the assumption that the service provider has nearly complete control over service quality. In addition, we identify mechanisms the service provider can use to indirectly manage the quality of the service and “regain” some of the control over service quality. Although we argue that the community plays a critical role in determining service quality, the web site must still technically meet the quality requirements of the members (Parasuraman et al., 2005). In other words, the service provider must also ensure that the quality of the technical platform is satisfactory or potential members of the community may not see the community as valuable enough for further contribution.

The remainder of this paper is organized as follows. First, we review the literature on virtual communities, service quality, and e-service quality. Based on this review, we propose a framework on the antecedents of service quality in community networked services, and the consequences of this service quality perceived by the members of the virtual community. Furthermore, we also identify mechanisms that the service provider may use to manage the quality of service provided by the members of the community.

LITERATURE REVIEW

Virtual Communities and Service Production

Due to virtual community being a relatively new concept, multiple definitions exist for it in the literature, with no common consensus (Leimeister and Krcmar, 2004). Another reason for this is that a virtual community is a multi-disciplinary concept (Preece, 2000), and researchers tend to define the concept from the perspective of their own discipline. The most straightforward way to define a virtual community is to consider it as a special case of a conventional community. However, sociologists struggle to define even the conventional community (Preece, 2000). To explore the areas of common agreement on the definition of a community, Hillery (1955) studied a wide number of community definitions and found that researchers agree that a community (1) is a group of people who (2) share social interaction and (3) share some common ties amongst themselves and the other members of the group and who (4) share the same space for at least a part of the time. For the purpose of this paper, we consider virtual communities to fulfill the above criteria with the special case that the shared space is virtual. Examples of the virtual space range from simple web forums to 3D virtual worlds.

From a business perspective, virtual communities are claimed to present lucrative business opportunities for firms that facilitate them (Hagel and Armstrong, 1997). Indeed, this has been indicated by success stories such as Facebook and MySpace. However, recent research has shown that management research on virtual communities is still very scarce and topically scattered (Laine, 2009). Therefore, virtual communities in general are a valid and important area of research from both practitioner and academic standpoints.

In this paper, we concentrate on virtual communities where the service provider adopts a passive role as a platform developer and maintainer, and relies on community members to provide value through the provision of various services. We define these services as *activities carried out by community members for the benefit of other community members*. In particular, these services are based on the application of specialized competences, such as knowledge and skills possessed by community members (cf. service-dominant logic (Vargo and Lusch, 2004)). This dependence on customers to provide service makes service production more challenging, because customers as service production resources are less easily manageable than employees (Chase, 1978; Kelley et al., 1990). This makes designing and implementing the service production system particularly challenging, as the service provider has less control over production resources to ensure the quality of these services.

As the services available in virtual communities are fully based on the contributions of the members of the community, we also conceptualize virtual communities as *networked service production systems*. The networked nature of these communities means that service production is not arranged in a hierarchical way but instead is decentralized. This conceptualization is compatible with the notion of service systems, defined by Spohrer et al. (2008) as: “A dynamic value co-creation configuration of resources, including people, organizations, shared information (language, laws, measures, methods), and technology, all connected internally and externally to other service systems by value propositions”.

Considering customers as part of service production systems is not a new idea. This was first conceptualized in the 1970s as part of the emerging service marketing stream (Bowen, 1986; Chase, 1978; Lovelock and Young, 1979). This perspective

suggests that customers should be understood as the co-producers of service (Bettencourt et al., 2002; Xue and Field, 2008) or as human resources available for service production (Bowen, 1986), and hence be managed similarly to managing the internal human resources of the service provider. Furthermore, customers engage in value co-creation (Spohrer and Maglio, 2008; Prahalad and Ramaswamy, 2004) either with the technical platform, as in self-service, or with other customers, as in the case of virtual communities.

As indicated in the service operations management literature, the distinctive feature of service production systems is the involvement of customer in production (Sampson and Froehle, 2006; Kellogg and Nie, 1995). In other words, customer input in terms of information or resources is required before service production can take place. Furthermore, as the quality of these customer inputs into service production is often more variable and harder to control, management of quality is more difficult in service operations (Mills et al., 1983; Correa et al., 2007; Johnston, 1999; Johnston and Morris, 1985; Sampson and Froehle, 2006; Roth and Menor, 2003; Fließ and Kleinaltenkamp, 2004; Goldstein et al., 2002).

Service Quality in Virtual Communities

Service quality has been studied extensively in the context of online service settings (Zeithaml et al., 2002; Rowley, 2006). Most of this literature is based on the notion of service quality originating in the service marketing literature (Parasuraman et al., 1985) and augmented by research on quality in information systems research (Pitt et al., 1995; van Dyke et al., 1997). Much of research on service quality is based on the SERVQUAL framework, which relies on customer perceptions (Parasuraman et al., 1988). This framework conceptualizes service quality as a five-dimensional construct, with dimensions of tangibles, reliability, responsiveness, assurance and empathy. Although the SERVQUAL framework has been criticized in both service marketing (Cronin and Taylor, 1994) and information systems literature (van Dyke et al., 1997), it still forms the basis of much of service quality research.

A common extension of the service quality discussion is to consider the quality of e-services or online services (Zeithaml et al., 2000, 2002; Parasuraman et al., 2005). However, much of this literature is concentrated on the technical aspects of quality in e-services, such as website design and availability of information (Moraga et al., 2006). Furthermore, most of the studies adopt an e-commerce context. As the role of human-provided service is often limited to user support provided by the e-commerce site provider (Parasuraman and Zinkhan, 2002; Bauer et al., 2006; Cai and Jun, 2003), these frameworks have limited applicability to virtual communities.

Service quality has also been discussed in more networked fashion, in the context of virtual communities (Kuo, 2003, 2004; Lin, 2008, 2007; Oh et al., 2003; Santos, 2003; Chen, 2007) and peer-to-peer networks (Kwok et al., 2002; Lui et al., 2002). Most of these contributions have still largely been based on the traditional notion of service quality, exemplified by the SERVQUAL framework. Furthermore, many of the developed quality models are still biased towards technological factors of quality (Lin, 2007). However, many papers on virtual community service quality have explicitly considered problems specifically associated with networked service production, namely the public good nature of knowledge and the possibility of free riding it entails (Kwok et al., 2002). In other words, service provision in networked environment is dependent on the willingness of users to provide their service to the system without compensation, i.e. “the kindness of strangers” (Wiertz and de Ruyter, 2007; Wasko and Faraj, 2000, 2005; Constant et al., 1996). Knowledge sharing and service provision in networked service production systems thus requires a level of social norms to form in the community (Wiertz and de Ruyter, 2007; Wasko and Faraj, 2005, 2000). The service provider must be able to nurture a “sense” of virtual community that will increase the willingness to participate in networked service production (Blanchard and Markus, 2004; Blanchard, 2007a). Of course, it must be recognized that since the virtual community is based on voluntary collaboration, it can only be directly managed to a limited degree (Lechner and Hummel, 2002).

Assessing Peer-to-Peer Service Quality in the Virtual Community

To elaborate more on the limitations of contemporary service quality frameworks, we discuss the applicability of the e-service quality framework (Santos, 2003; Zeithaml et al., 2002; Parasuraman et al., 2005) into a virtual community service context. This e-service quality framework is divided into two main dimensions: incubative and active. The incubative dimension is concerned with the proper design of a web site (Santos, 2003), which has traditionally been under the strict control of the service provider. This dimension may be further divided into ease of use, appearance, linkage, structure and layout, and content (Santos, 2003; Zeithaml et al., 2002). We contend that in the virtual community context, the service provider still retains great control of the incubative dimension, yet in some areas the responsibility has shifted towards the community.

For example, many virtual community sites use interactive discussion boards to provide customer support. Effective means of communication provide value for the community, but the technical features used for communication can be easy to mimic.

For these reasons, the quality of communication resides predominantly in the hands of the community. We argue that the same also applies to incentives in a virtual community context, as indicated by literature on the determinants of contribution (Wang and Fesenmaier, 2004; Lin, 2006).

As with traditional e-commerce services, security and efficiency belong to the responsibilities of the service provider, though policies toward 3rd party extensions also fall into this category, particularly if hosted outside the service provider. Security in a virtual community context must also be considered from a non-technical perspective. Privacy-related issues are highly sensitive topics in the area of social networking, and sites are increasingly adding features to give users more control over the visibility of their data. Clearly defined privacy policies may also increase the user's perceived quality of the service.

The notion of reliability in the virtual community context also captures aspects of the user-to-user interaction and extends beyond the technical platform. For instance, if a technical discussion forum is used only by individuals with low technical skills, the reliability of the content of the site can be low. One of the key ways service providers can influence the quality of their content is through setting governance policies and providing features to enforce them. As an example, on-line trust and reputation systems have received much interest among researchers (Jøsang et al., 2007).

TOWARDS A VIRTUAL COMMUNITY SERVICE QUALITY MODEL

Based on the above assessment of literature on e-service and virtual community service quality, we propose a tentative high-level model of service quality in virtual communities, depicted in Figure 1. Our model, similar to the model proposed by Lin (2007), suggests that the overall quality of service perceived by the members of the virtual community is dependent on the system quality, information quality and service quality. However, in comparison to Lin's model, we suggest that features of the networked service production system are antecedents rather than consequences of the various dimensions of virtual community service quality. Furthermore, as the service provider cannot directly affect the service quality or information quality dimensions, indirect measures must be taken to manage them.

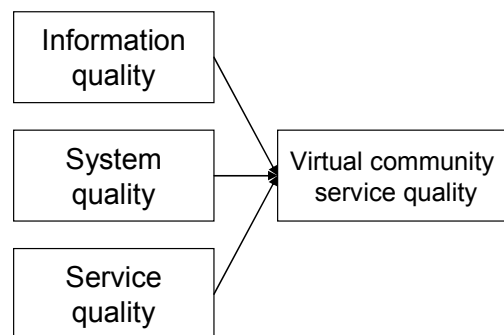


Figure 1. Components of virtual community service quality

Information quality refers to the extent to which the knowledge and information provided within the virtual community fulfills the needs of community members. This dimension is related to information availability and content (Zeithaml et al., 2002), or the usefulness of content (Yang et al., 2005). As this dimension is fully dependent on the actions of community members, the service provider cannot directly affect information quality. However, the provider may attempt to indirectly improve it, for example by providing easy content creation mechanisms, utilizing spell-checkers or using administrators to control contributions.

System quality refers to the technical quality of the web site used to serve the virtual community (Lin, 2007). Unlike the other two dimensions of virtual community service quality, the service provider as the provider of the technological platform of the community can directly affect this dimension of service quality through technical and user interface design of the technological platform. Specific components of system quality include ease of use (Santos, 2003; Zeithaml et al., 2002) or usability (Yang et al., 2005), reliability (Santos, 2003) or availability of the system (Parasuraman et al., 2005), efficiency of using the platform (Santos, 2003; Parasuraman et al., 2005), and privacy/security issues (Zeithaml et al., 2002; Yang et al., 2005).

Service quality refers to the perceived level of personal service received and provided by community members. Unlike Lin (Lin, 2007), we consider this aspect of virtual community service quality to be increasingly dependent on the actions of

community members the more passive role the service provider assumes. Here we refer to the original SERVQUAL framework and propose that this aspect of virtual community service quality depends on the reliability, assurance, responsiveness and empathy displayed by the community members towards each other when communicating in the virtual community.

As the service provider does not contribute to the provision of services in a community based purely on the interaction of community members, it can only affect the service quality component indirectly. This requires fostering a “sense of community” (Blanchard and Markus, 2004; Koh and Kim, 2003; Blanchard, 2007b), and the norms of the community, for example through setting explicit rules for using the system. As indicated by Yen and Hsu (2006), virtual community management can have a positive impact on the norms and motivation to participate in networked service production. Hence, the service provider should actively seek to identify mechanisms by which it can indirectly contribute to the service quality perceived by community members.

CONCLUSIONS

In this paper, we have conceptualized virtual communities as networked service production systems where the online service is predominantly provided by the members of the community instead of a central commercial service provider. Seeing the members of the community as resources for service production has significant implications for managing the quality of service perceived by community members. In particular, the service provider cannot directly affect the quality of service but instead must rely on several indirect strategies for ensuring the service quality for the members of the community. However, since the quality of service perceived by community members is directly related to the perceived value of the community, and hence the performance of the commercial service provider, we have argued that ensuring service quality is a key priority for the service provider.

However, we have considered only one kind of virtual community, namely a community where the service provider’s role is limited to the provision of a technological platform, and where the members of the community provide most of the services. As there are also other kinds of communities, in which the role of the service provider is more significant, the implications of this study may not directly apply.

In addition, we have assumed that the members of the community are a homogeneous group. Obviously, in many virtual communities this is not the case. For example, the providers and consumers of service may be sharply divided groups. In some other communities, some members may specialize in developing new features to the technological platform. A full model of virtual community service quality would require addressing the heterogeneous nature of the members of a virtual community.

Furthermore, we have only provided anecdotal support for the developed framework. Thus, the developed framework of networked service production system and service quality should be considered tentative. In addition, as the overall value of a virtual community is also dependent on the size of the community due to network externalities, the economic analysis of the impact of community size should be incorporated in future development of the framework on the value of the virtual community to its members.

REFERENCES

1. Bauer, H.H., Falk, T. and Hammerschmidt, M. (2006) eTransQual: A transaction process-based approach for capturing service quality in online shopping, *Journal of Business Research*, 59(7), 866-875.
2. Bettencourt, L.A., Ostrom, A.L., Brown, S.W. and Roundtree, R.I. (2002) Client co-production in knowledge-intensive business services, *California Management Review*, 44(4), 100-128.
3. Blanchard, A.L. (2007a) Testing a model of sense of virtual community, *Computers in Human Behavior*.
4. ---. (2007b) Developing a sense of virtual community measure, *Cyberpsychology & Behavior*, 10(6), 827-830.
5. Blanchard, A.L. and Markus, M.L. (2004) The experienced "sense" of a virtual community: Characteristics and processes, *ACM SIGMIS Database*, 35(1), 64-79.
6. Bowen, D.E. (1986) Managing customers as human resources in service organizations, *Human Resource Management*, 25(3), 371-383.
7. Cai, S. and Jun, M. (2003) Internet users’ perceptions of online service quality: A comparison of online buyers and information searchers, *Managing Service Quality*, 13, 504-519.
8. Chase, R.B. (1978) Where does the customer fit in a service operation? *Harvard Business Review*, 56(6), 137-142.

9. Chen, I.Y.L. (2007) The factors influencing members' continuance intentions in professional virtual communities: A longitudinal study, *Journal of Information Science*, 33(4), 451.
10. Chun, S.Y. and Hahn, M. (2007) Network externality and future usage of Internet services, *Internet Research*, 17(2), 156-168.
11. Constant, D., Sproull, L. and Kiesler, S. (1996) The kindness of strangers: The usefulness of electronic weak ties for technical advice, *Organization Science*, 7(2), 119-135.
12. Correa, H., Ellram, L., Scavarda, A. and Cooper, M. (2007) An operations management view of the services and goods offering mix, *International Journal of Operations & Production Management*, 27(5), 444-463.
13. Cronin Jr, J.J. and Taylor, S.A. (1994) SERVPERF versus SERVQUAL: Reconciling performance-based and perceptions-minus-expectations measurement of service quality, *Journal of Marketing*, 58(1), 125-131.
14. van Dyke, T.P., Kappelman, L.A. and Prybutok, V.R. (1997) Measuring information systems service quality: Concerns on the use of the SERVQUAL questionnaire, *MIS Quarterly*, 21(2), 195-208.
15. Fließ, S. and Kleinaltenkamp, M. (2004) Blueprinting the service company - Managing service processes efficiently, *Journal of Business Research*, 57(4), 392-404.
16. Goldstein, S.M., Johnston, R., Duffy, J.A. and Rao, J. (2002) The service concept: The missing link in service design research? *Journal of Operations Management*, 20(2), 121-134.
17. Hagel, J. and Armstrong, A. (1997) Net gain: Expanding markets through virtual communities, Harvard Business School Press, Cambridge, MA, USA.
18. Hillery, G.A. (1955) Definitions of community: Areas of agreement, *Rural sociology*, 20(2), 111-123.
19. Hofacker, C.F., Goldsmith, R.E., Bridges, E. and Swilley, E. (2006) E-services: A synthesis and research agenda, *Journal of Value Chain Management*, 1.
20. Johnston, R. (1999) Service operations management: Return to roots, *International Journal of Operations & Production Management*, 19(2), 104-124.
21. Johnston, R. and Morris, B. (1985) Monitoring and control in service operations, *International Journal of Operations and Production Management*, 5(1), 32.
22. Jøsang, A., Ismail, R. and Boyd, C. (2007) A survey of trust and reputation systems for online service provision, *Decision Support Systems*, 43(2), 618-644.
23. Katz, M. and Shapiro, C. (1985) Network externalities, competition, and compatibility, *American Economic Review*, 75(3), 424-440.
24. Kauffman, R.J., McAndrews, J. and Wang, Y.M. (2000) Opening the "black box" of network externalities in network adoption, *Information Systems Research*, 11(1), 61-82.
25. Kelley, S.W., Donnelly Jr, J.H. and Skinner, S.J. (1990) Customer participation in service production and delivery, *Journal of Retailing*, 66(3), 315-335.
26. Kellogg, D. and Nie, W. (1995) A framework for strategic service management, *Journal of Operations Management*, 13(4), 323-337.
27. Koh, J. and Kim, Y.G. (2003) Sense of virtual community: A conceptual framework and empirical validation, *International Journal of Electronic Commerce*, 8(2), 75-94.
28. Kuo, Y.F. (2003) A study on service quality of virtual community websites, *Total Quality Management and Business Excellence*, 14, 461-474.
29. ---. (2004) Integrating Kano's model into web-community service quality, *Total Quality Management & Business Excellence*, 15(7), 925-939.
30. Kwok, S.H., Lang, K.R. and Tam, K.Y. (2002) Peer-to-peer technology business and service models: Risks and opportunities, *Electronic Markets*, 12(3), 175-183.
31. Laine, M.O.J. (2009) Bibliometric analysis and systematic review of management literature on virtual communities, in *Proceedings of the 9th European Academy of Management Conference (EURAM)*, May 11-14, Liverpool, UK.
32. Lechner, U. and Hummel, J. (2002) Business models and system architectures of virtual communities: From a sociological phenomenon to peer-to-peer architectures, *International Journal of Electronic Commerce*, 6(3), 41-53.

33. Leimeister, J.M. and Krcmar, H. (2004) Revisiting the virtual community business model, in *Proceedings of the 10th Americas Conference on Information Systems (AMCIS)*, New York, NY, 2716-2726.
34. Lin, C. (2008) The cyber-aspects of virtual communities: Free downloader ethics, cognition, and perceived service quality, *Cyberpsychology & Behavior*, 11(1), 69-73.
35. Lin, H.F. (2006) Understanding behavioral intention to participate in virtual communities, *Cyberpsychology & Behavior*, 9(5), 540-547.
36. ---. (2007) The role of online and offline features in sustaining virtual communities: An empirical study, *Internet Research*, 17(2), 119-138.
37. Lovelock, C.H. and Young, R.F. (1979) Look to consumers to increase productivity, *Harvard Business Review*, 57(3), 168-178.
38. Lui, S.M., Lang, K.R. and Kwok, S.H. (2002) Participation incentive mechanisms in peer-to-peer subscription systems, in *Proceedings of the 35th Annual Hawaii International Conference on System Sciences (HICSS)*, HI, USA, 3925-3931.
39. Messerschmitt, D.G., Peltonen, J., Laine, M.O.J. and Oza, N. (2008) *Community networked services: Learning from Web 2.0*. Technical report. Retrieved March 1, 2010, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1320947.
40. Meuter, M.L., Ostrom, A.L., Roundtree, R.I. and Bitner, M.J. (2000) Self-service technologies: Understanding customer satisfaction with technology-based service encounters, *Journal of Marketing*, 64(3), 50-64.
41. Mills, P.K., Chase, R.B. and Marguiles, N. (1983) Motivating the client/employee system as a service production strategy, *Academy of Management Review*, 8(3), 475-485.
42. Moraga, A., Calero, C. and Piattini, M. (2006) Comparing different quality models for portals, *Online Information Review*, 30(5), 555-568.
43. Oh, S., Choi, J., Lee, S. and Jung, S. (2003) Toward an integrated framework for assessing website performance: Depending on presence of virtual community, in *Proceedings of the Annual Meeting of the Decision Sciences Institute*, 955-960.
44. Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1985) A conceptual model of service quality and its implications for future research, *Journal of Marketing*, 49(4), 41-50.
45. ---. (1988) SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality, *Journal of Retailing*, 64(1), 12-40.
46. Parasuraman, A., Zeithaml, V.A. and Malhotra, A. (2005) ES-QUAL: A multiple-item scale for assessing electronic service quality, *Journal of Service Research*, 7(3), 213.
47. Parasuraman, A. and Zinkhan, G.M. (2002) Marketing to and serving customers through the Internet: An overview and research agenda, *Journal of the Academy of Marketing Science*, 30(4), 286.
48. Pitt, L.F., Watson, R.T. and Kavan, C.B. (1995) Service quality: A measure of information systems effectiveness, *MIS Quarterly*, 19(2), 173-187.
49. Prahalad, C.K. and Ramaswamy, V. (2004) Co-creating unique value with customers, *Strategy & Leadership*, 32(3), 4-9.
50. Preece, J. (2000) *Online communities: Designing usability and supporting sociability*, John Wiley and Sons, New York, NY, USA.
51. Roth, A.V. and Menor, L.J. (2003) Insights into service operations management: A research agenda, *Production and Operations Management*, 12(2), 145-164.
52. Rowley, J. (2006) An analysis of the e-service literature: Towards a research agenda, *Internet Research*, 16(3), 339-359.
53. Sampson, S.E. and Froehle, C.M. (2006) Foundations and implications of a proposed unified services theory, *Production and Operations Management*, 15(2), 329-343.
54. Santos, J. (2003) E-service quality: A model of virtual service quality dimensions, *Managing Service Quality*, 13(3), 233-246.
55. Spohrer, J. and Maglio, P.P. (2008) The emergence of service science: Toward systematic service innovations to accelerate co-creation of value, *Production and Operations Management*, 17(3), 238-246.
56. Spohrer, J., Vargo, S.L., Caswell, N. and Maglio, P.P. (2008) The service system is the basic abstraction of service science, in *Proceedings of the 41st Annual Hawaii International Conference on System Sciences (HICSS)*.

57. Wang, Y. and Fesenmaier, D.R. (2004) Towards understanding members' general participation in and active contribution to an online travel community, *Tourism Management*, 25(6), 709-722.
58. Vargo, S.L. and Lusch, R.F. (2004) Evolving to a new dominant logic for marketing, *Journal of Marketing*, 68(1), 1-17.
59. Wasko, M.M. and Faraj, S. (2000) "It is what one does": Why people participate and help others in electronic communities of practice, *Journal of Strategic Information Systems*, 9, 155-173.
60. ---. (2005) Why should I share? Examining social capital and knowledge contribution in electronic communities of practice, *MIS Quarterly*, 29(1), 35-57.
61. Wiertz, C. and de Ruyter, K. (2007) Beyond the call of duty: Why customers contribute to firm-hosted commercial online communities, *Organization Studies*, 28(3), 347-376.
62. Xue, M. and Field, J.M. (2008) Service coproduction with information stickiness and incomplete contracts: Implications for consulting services design, *Production and Operations Management*, 17(3), 357-372.
63. Yang, Z., Cai, S., Zhou, Z. and Zhou, N. (2005) Development and validation of an instrument to measure user perceived service quality of information presenting web portals, *Information & Management*, 42(4), 575-589.
64. Yang, Z. and Jun, M. (2002) Consumer perception of e-service quality: From Internet purchaser and non-purchaser perspectives, *Journal of Business Strategies*, 19(1), 19-41.
65. Yen, H.J. and Hsu, H.Y. (2006) Consumer co-production in product-related virtual community – Does community management matter?, in *Proceedings of the 11th Annual Conference of Asia Pacific Decision Sciences Institute Hong Kong*, June 14-18.
66. Zeithaml, V.A., Parasuraman, A. and Malhotra, A. (2000) A conceptual framework for understanding e-service quality: Implications for future research and managerial practice, Marketing Science Institute, Cambridge, MA, USA.
67. ---. (2002) Service quality delivery through web sites: A critical review of extant knowledge, *Journal of the Academy of Marketing Science*, 30(4), 362-375.
68. Zhang, X. and Prybutok, V.R. (2005) A consumer perspective of e-service quality, *IEEE Transactions on Engineering Management*, 52(4), 461-477.