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Towards a Research Agenda for Virtual
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TOWARDS A RESEARCH AGENDA FOR VIRTUAL COMMUNITIES

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ABSTRACT

The Internet has spurred a phenomenal growth of virtual communities (VC). VCs can range from simple information exchange based forums to more complex networks supporting new product development. For example, communities of interest based forums such as investment-related Virtual Communities bring together individuals interested in exchanging information about stocks while online production communities such as open source development communities focus on developing a new product. This Mini-track is designed to focus on issues relevant to the design, management and impact of VCs. It attracted several good submissions addressing many relevant issues for theory development and practice. In this paper, we summarize the accepted papers for the Virtual Communities track and outline areas for future research.

KEYWORDS

Virtual Communities, Peer-to-Peer Communities, Open Source Communities, Research Agenda

INTRODUCTION

Virtual Communities (VCs) based on message boards, chat rooms, user groups and blogs have been high activity domains on the Internet for more than a decade. With the rise of web 2.0 they are receiving even more attention in practice and academia. In its seventh year the AMCIS 2007 Mini-track on Virtual Communities attracted several diverse and interesting submissions and has been again one of the most successful Mini-tracks at the conference. During the last six years we have been using the Mini-track as a forum to bring together a community of researchers who are interested in the field of Virtual Communities and related issues. Information on this Mini-track is available at: <http://www.virtual-communities.org>.

Among other benefits, VCs offer ubiquitous access to information for participants of the community. They can be designed for a variety of purposes that could range from Communities of Interest, Communities of Relationship, Gaming Communities, and Communities of Transaction to Peer-to-Peer Communities or Mobile Communities. The significance of these communities is evident by the impact they have on information generation and transmission, and socialization. For example, today, blogs are quickly becoming a primary source of information in a variety of domains. The dynamic and interactive nature of these forums makes them very attractive for the users. An additional value offered by many of these

communities is their ability to support socialization and offer an identity for the participants. While most virtual communities share these characteristics, it is also important to recognize that virtual communities are not homogeneous; they differ significantly based on the domain, purpose and benefits. For example, VCs for investments are focused on offering an important forum for individual investors to discuss stock performance. Open source communities, on the other hand, are virtual communities that offer a platform for participants to collaborate and produce a product of value to the entire community. Within the field of information systems, researchers are interested in studying interaction patterns, transaction processes, management issues, business models, and design aspects of information systems and services for virtual communities. Community members interact via digital media and contribute value in the form of content, reviews, and recommendations. Related issues are trust, network effects, transaction costs and the design of services. Well-organized communities even expand their power across various channels and into the Offline world.

This Mini-track aims to help the community of researchers in various ways, such as:

- Shaping an agenda for future research on VCs
- Sharing cutting edge research on VCs
- Promoting research on Virtual Communities
- Fostering cross-national collaborative research projects

RESEARCH ON VCS – AMCIS 2007 PAPERS

The Mini-track on Virtual Communities is a forum to discuss the design, management, use and impacts of virtual communities from technological, social and economic perspectives. We accepted 12 research papers that address important questions in many of these areas for presentation at AMCIS 2007. Below, we briefly describe the research accepted for presentation this year.

The research paper “Interpersonal relationship needs of Virtual Community Participation” by Honglei Li and Vincent Lai addresses the motivations of members’ participation in VCs. Arguing that interpersonal relationship needs are important to drive members’ participation, this paper uses the Fundamental Interpersonal Relationship Orientation approach as the framework to explore why people participate in virtual communities. The empirical study is based on three large Chinese VCs. The study finds that people obtain information in virtual communities because they want to satisfy two kinds of needs—*inclusion* and *affection*. The authors argue that sharing information in virtual communities is motivated by three types of needs—inclusion, control, and affection. In summary, the study provides theoretical explanation for information sharing in VCs and validates the explanation based on an empirical study.

The paper “Sharing of Knowledge in Public Knowledge Spaces: Influencing Factors” by Tejaswini Herath and G.L. Sanders also addresses the motivation to actively participate in community knowledge generation and sharing activities and especially what motivates people to share knowledge on public domains. In an attempt to understand the factors that may influence this issue, the article explores related research in social exchange theory, public goods theory and organizational knowledge sharing to develop a testable theoretical model.

The paper “Mobile Communities of Practice” by Jan Kietzmann addresses convergence aspects of mobile devices, mobile applications and the concept of communities of practice. This paper describes two real-life cases from mobile workers to illustrate different scenarios for mobile Communities of Practice (CoP) and raises some practical and theoretical considerations for facilitating mobile CoP.

The paper “Managing Virtual Communities – A Case Study of a Viable System” by Christoph Rosenkranz and Christoph Feddersen addresses the development of management structures in a non-commercial VC. The authors match their findings with the Viable System Model, develop and test hypotheses based on this model. Data from the case study are used to illustrate the theories and to demonstrate principles for community management derived from the application of the Viable System Model.

The paper “Online Communities for Customer Relationship Management on Financial Stock Markets - a Case Study from a German Stock Exchange by Christoph Lattemann and Stefan Stieglitz addresses the potentials of VCs for direct customer relationship management (CRM) among retail investors and financial exchanges. To overcome CRM related problems in the financial exchange industry a platform for a direct CRM among retail investors and financial exchanges is proposed and implemented. It relies on web 2.0 technologies to build a VC where the retail investors can share information about needs, requirements, and ideas about the market model for retail trading platforms and other relevant trading and settlement

information. An overview of the implementation and initialization phase of the community is provided and preliminary results and responses of community members are analysed.

The paper “A Facilitators’ Perspective on Successful Virtual Communities of Practice” by Halbana Tarmizi, Gert-Jan de Vreede and Ilze Zigurs addresses Communities of Practice as a key instrument in organizational knowledge management. Understanding characteristics of successful CoP can help organizations avoid failed efforts at building communities for knowledge exchange. CoP facilitators can contribute significantly to their success. Facilitators’ experience dealing with communities and its members can help in understanding more about surrounding issue of successful community. The authors draw from the knowledge of communities of practice facilitators regarding their experience in facilitating successful communities. Several common characteristics of successful communities are identified and discussed in the paper.

“Creating a Virtual Innovation System in Second Life” by Molly Wasko, Robin Teigland and Brian Donnellan tackles the potential of VCs for overcoming geographical limitations of regional innovation systems. The current rationale is that geographic regions provide the best context for innovation systems to emerge and thrive because of localized learning processes and the need to transfer “sticky” knowledge through social interaction. The core idea is that innovative activity relies upon an entire system composed of a variety of institutions and infrastructures, interacting to create a learning-conducive environment that is geographically bound. The benefits associated with establishing regional innovation systems is that physical proximity facilitates the necessary underlying social capital essential to the creation of new intellectual capital. However, this concept of promoting innovation by restricting researcher and private firm mobility to specific geographic regions has real limitations. For example, there may not be enough developed land, housing or amenities to attract the top scientists and organizations. This begs the question - can regional innovation systems designed in a virtual world generate the same dynamics? In this paper, the authors consider whether the term “regional” in the sense of innovation systems is limited to geographic proximity in the real world, or whether or not this concept extends to geographic proximity in a virtual world. The paper presents design ideas on how to create a virtual regional innovation system in the virtual world of *Second Life*. The community design is based on the theoretical foundation underlying the primary and support activities of innovation systems. The authors then present some ideas about how these activities may be translated to a virtual community.

The paper “Facilitating Employee Creativity: What We Can Learn From Online Work Community?” by Dejin Zhao and Mary Beth Rosson explores the potential of VCs for fostering and leveraging creativity in work settings. Creativity has been recognized as vital to organization success. With the rise of the new creative class (Florida, 2002), scholars and organization practitioners have been seeking ways of changing organizational settings to better facilitate creativity production in organizations. Online work communities (OWC), a new type of organization, have been emerging around creative works in the last decade. In this paper, the authors investigate the potential effects that online communities may have on facilitating employee creativity in organizations. Drawing on prior research about creativity in organizations, the authors propose a conceptual framework for analyzing organizational contextual effects on individual creativity. The framework categorizes contextual factors into three categories - intrinsic motivation, knowledge, and social capital. For each contextual factor in the framework, the authors discuss how it is supported in online work communities, with illustrations using exemplar communities. Finally, they propose a model that summarizes how specific characteristics of online work communities might facilitate creativity in organizations.

“Understanding Self-Disclosure in Electronic Communities: A Model of Privacy Risk, Reciprocity, and Trust” by Clay Posey and T. Selwyn Ellis addresses social networking communities such as Facebook.com and MySpace.com that supports communication to a large group of members or a specified group of individuals. Given that there is very little research in this domain that examines the underlying factors which play a role in an individual’s contribution to those communities, there is a great opportunity for research. The present study contributes to this area by focusing on the following question, - what conditions must be satisfied for an individual to disclose personal and/or private information about themselves in an online community? The authors address this question by applying both Communication Privacy Management and Social Penetration theories from the communication literature in a model of individual self-disclosure. Through a Partial Least Squares analysis of data collected from 123 Facebook.com and MySpace.com users, their analyses show strong relationships between privacy risk, reciprocity, and trust in individuals’ decisions to engage in the five dimensions of self-disclosure in electronic communities.

The Paper “How May E-Learning Groups Interact?” by Chia-Ping Yu and Feng-Yang Kuo try to shed light on how e-learning groups interact. According to Wheelan (1994), for physical groups there are several types of interaction: dependency, flight, fight, counter-dependency, pairing, counter-pairing and work. This study adopts the content analysis approach to investigate how virtual groups from a cyber-university interact over a period of twenty weeks. The findings suggest that e-learning groups flight, work, fight, and pair. Flights reinforce the cooperative relationships and then help building a stronger social relationship. Fights provide important diagnostic evidences to each member to assess and adjust his or her values and needs. Partners pair to demonstrate concerns and desire for satisfying others’ personal preferences and wishes. Work appears swiftly and facilitates members to continually cooperate.

The paper “Fun, Simple and Instructive: Towards a Design Theory for a Constructivist Gaming Learning Environment” by Roberto, Muñoz R. and George R. Widmeyer tries to create a design theory for Constructivist Gaming Learning Environment. This requires, among other things, the establishment of meta-design principles. These principles can potentially help designers develop games, where users achieve higher levels of learning. This paper focuses on three key design principles important in this context: Engaging, User Interface Ease of Use, and On Demand and Just-in-Time Tutorial. Game play testing and observations are carried out on three Massive Multiplayer Online Games (MMOGs): RuneScape, GuildWars, and Ragnarok. The paper’s preliminary findings indicate that not all of the popular MMOGs support all of these principles. This research in progress aims at providing a foundation for the validation and revision of meta-design principles through the Constructivist Gaming Learning Environment Survey.

The paper “A Model Of Identity Credibility In Virtual Communities: An Elaboration Likelihood Model Perspective” by Jie Yu, Zhenhui Jiang and Hock Chuan Chan investigates the importance of identity credibility under pre-interaction circumstance in virtual communities. The authors propose a model showing the antecedents and consequences of credibility of identity. Drawing on institution-based process, attitude change process and information richness theory, the authors identify three antecedents: perceived effectiveness of rules, formality of third-party endorsement which serves as central route in ELM, and information richness of target identity as peripheral route. Based on prior work, the authors also identify consequences from both a short term perspective (members’ adoption intention of suggestions) and long term perspective (perceiver identity’s likelihood of future direct interaction with the target identity) in the context of problem solving or knowledge sharing. The authors expect this model to provide virtual community practitioners with suggestions on how to improve credibility of their members through deliberate design and management of virtual communities.

In sum, the papers in this Mini-track address many important questions in a wide range of settings. There is tremendous potential for researchers to examine interesting questions that can significantly contribute to our understanding of VCs. Future research is needed in understanding the antecedents, the structural features, design parameters and the outcomes of Virtual Communities in the digital economy. In the following section we highlight some of these areas where future research can advance our understanding of Virtual Communities.

TOWARDS A RESEARCH AGENDA FOR VIRTUAL COMMUNITIES

We see several areas of research that can contribute significantly to both theory and practice. Below, we outline some of these areas along with suggestions for research questions. We hope this will encourage future research and help researchers to build on prior work.

PROBLEM SITUATIONS AND TARGET GROUPS THAT VCS ADDRESS

Participating in virtual communities has become easier in recent years owing to the wide reach of the Internet. The success of blogs and wikipedia exemplify the success of VCs. “Second Life” illustrates how more and more aspects of the users’ “real” life is reflected in VCs. The future will see more of projects like Second Life become an important trend in Virtual Communities. This raises many interesting questions: How can we improve the social aspects within this virtual life? How can we bring people together by improving the design? Are VCs relevant in the context of projects like Second Life? We expect projects like Second Life will be an important object for VCs research in the future.

Reputation systems in electronic markets are often based on user contributions based on a VC. Whether it is for products (e.g. ciao.com) or services (e.g. holydaycheck.com, expedia.com) many of these electronic markets need the users’ contributions to assess product or service quality. In most VCs the contributions of users are the backbone of the community and one of the most important factors driving its success. So, researchers can examine incentive mechanisms to drive user participation and the effectiveness of these mechanisms. In addition, the motivation for user participation in VCs will continue to be an important area of research. Future research can go beyond understanding why users participate in online communities by studying the relationships between the different motivations and the usage and success of VCs. It would also be fruitful for studies to look into the differences in user motivation across cultures.

DESIGN OF VCS

The need for special e-services for different types of users that are part of a VC must be supported by the community platforms. For example, VCs can distinguish between young users and older users, new members and experienced members

within the VC, and active members and lurkers. Special VCs distinguish even more e.g. VC of patients distinguish between long term affected people and short term affected people. In addition, user roles are also important in distinguishing VCs. Thus, there are a myriad of aspects that are important to the design of VC with respect to its users.. Some relevant questions for researchers on the design of VCs include:

- What are the different types of roles that users have in VCs and what are the design requirements for each type?
- How can VCs be designed to connect members with different levels of participation (e.g. active members and lurkers)?
- How can VCs be designed to meet the needs of different types of users (e.g. new and experienced users)?

The impacts of VC on different aspect of real life (e.g. social) are constantly increasing. The support of an integration of the real world within the VC is a great challenge. For a VC, it is often important to allow users to give insights from one realm to another (Suler 2005). This linkage is often established by e-mails or private chats between users of a VC. A tighter integration of this communication between users and their realms would benefit both, the users and the VC. This is already evident in specialized VCs like those of patient groups interacting in a virtual setting. The support of interaction between users of a VC not just within the community but beyond as well strengthen the bonding of the users to the community (Dannecker and Lechner 2007). Some relevant research questions that can be studied are:

- What kind of services does a VC need to support interaction between the user's realms?
- What kind of services does a VC need to support the allow users to give more insights in the realms the user is acting?
- What type of trust-supporting components (see e.g. Leimeister et al 2005 for VCs for patients) can be applied to different types of VCs?

VCs by their design have different goals. Some of them are based on a special topic of interest to the community with predominant focus on information and knowledge exchange. Within these VCs are participants that include experts and users that are new but interested in this topic. So the exchange of the expertise in terms of knowledge transfer is important to the success of such VC. Most of this exchange is often based on forums in a rather unstructured way. Often the users with the highest expertise also includes people that are not that skilled to handle complex services offered in VCs. Thus there is a need for an easy to use interface to contribute. In this context, some important research questions that can examined are:

- How can VCs be designed to support user groups with heterogeneous needs?
- How can VCs be designed to support the exchange of knowledge?
- How can VCs be designed to structure the exchange of knowledge?
- How can interfaces be designed to make participant contributions to a VC easy?
- What are successful incentive mechanisms for knowledge exchange in VCs?
- What type of filtering technologies are appropriate for maintaining the quality of postings in a VC?

DEPLOYMENT & USE OF VCS

The role of the operator of a VC is not that clearly defined. An active community to control or manage the VC is in the interest of the operators (Leimeister et al. 2006; Dannecker and Lechner 2006) but it is unclear what is important to the users. What kind of responsibilities are appropriate for a VC operator? It is a challenge to satisfy the role of an operator without bringing the community management in a prominent view to the users. The tool support to the community management that automatically analyses the community based on different metrics (e.g. number of members' growth etc.) is one way to support the operator by the community management. Some questions that are relevant especially to practice in this domain are:

- What kind of tools can support the community management, e.g. in terms of members growth, members participation etc.?
- What kind of community management task should be done by the operator in what type of VC?
- What kind of community users can be empowered to take over community management tasks?
- What type of community management activities can be taken over by groups of community users?
- What effects do community management conducted by operators or members have on the success of a VC?

Community management is a difficult and complex task that in most cases would need both a formal mechanism managed by an operator and by the community. Each VC does have its own view on community management and so each VC must be analyzed separately. A framework on what kind of different community management tasks are possible, and how to management these tasks, is helpful to evaluate the best strategy for a special VC. Given the varied use of VCs, researchers can also examine the effectiveness of different governance mechanisms in managing VCs. With a number of VCs operating

in the same domain, questions relating to competition among them are also very relevant (e.g. Gu, Konana, Rajagopalan and Hsuan-Wei, 2007) .

EVALUATION OF VCS

There are several success factor catalogues for VC in general (Preece 2001; Leimeister et al 2006) and also for special types of communities (Dannecker and Lechner 2006). Nevertheless, in many cases the metrics for success are based on the objectives of the VC. Typically, it is measured by variables like new members added in a period of time, growth in contributions etc. The effects of VC on participant benefits (e.g. the quality of life, cost of work or quality of work) is hardly ever measured. A more comprehensive approach to measure the success of VC would be very helpful to provide insights into the benefits that accrue from a VC.

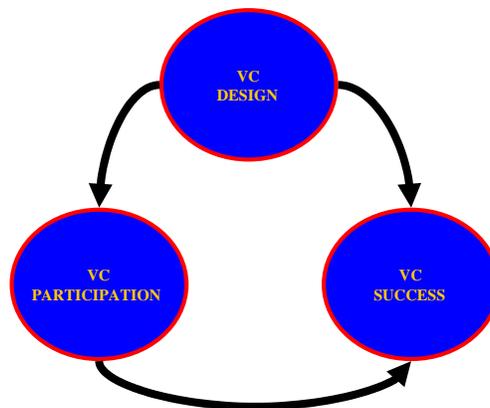
Interestingly, success of a VC is highly dependent on the context. While one VC may not benefit from the presence of a large number of lurkers, others could gain significantly from this group. .Wikipedia and it's accompanying VC is one example of user-generated content that highly appreciates lurkers. For those VCs, that value active participants significantly more, the conversion rate of inactive users to active users could serve as an important metric for the success of a VC. A thorough understanding of the role of active users and lurkers are important to adequate management routines and structures within a VC. Another context for a VC that is highly relevant when evaluating their success is culture. For VCs in different cultures, studying whether the determinants of success apply equally across them can unravel the differing dynamics in these communities.

A CONCEPTUAL MODEL FOR STUDYING VIRTUAL COMMUNITIES

The design, the participation, and to measure the success of VCs are the key challenges of future research in the field of VCs. We propose that the interrelation of these three aspects will be the source of several interesting research questions. We offer some questions for researchers to build on:

- How does the design of VC have impacts on the success of VCs?
- How does the design influence the participation in VCs?
- How does participation within the VC impact success?
-

In Figure 1 we propose a conceptual model as a framework to study VCs.



We are confident that this Mini-track will maintain its role as a hub for research in the field and we invite researchers to join us in working on making this a high quality research resource for anyone interested in VCs. Come and join the Community of VC researchers!

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