

The Success of Virtual Communities of Practice: The Leadership Factor

Anne Bourhis, Line Dubé and Réal Jacob
HEC Montréal, Canada

Anne.Bourhis@hec.ca

Line.Dube@hec.ca

Real.Jacob@hec.ca

Abstract: Contrary to the “one-fits-all” approach used in the literature on how to sustain virtual communities of practice (VCoPs), this paper advocates that successful management practices should be contingent upon their basic characteristics. More specifically, this study of eight virtual communities of practice investigates how the actions taken by the communities’ leadership teams may influence their success. The results show that decisions regarding the operational leadership of a VCoP are crucial elements to counteract the challenges arising from its structuring characteristics. Among those decisions, the choice and availability of a leader and the support of a coach are shown to be crucial.

Keywords: Virtual community of practice, virtual group, leadership, knowledge sharing, organizational learning

1. Introduction

Transformative changes due to globalization and the current knowledge revolution are forcing organizations to constantly innovate and create new capabilities in order to face the growing pressure for improved performance. Knowledge management through collaborative work is one of the most powerful ways to innovate and develop these new capabilities (Wenger & Snyder 2000). A community of practice (CoP) which binds together a group of people who share a concern, a set of problems, an expertise or a passion about a topic (Wenger et al. 2002; Wenger & Snyder 2000) is seen as an innovative way to create and share organizational knowledge. Using information and communication technology (ICT) such as Internet to support their ongoing interactions, CoPs become increasingly virtual (VCoPs), which frees their members from constraints of time and space.

Although CoPs were once defined as spontaneously emerging groups (Wenger & Snyder 2000), it is now widely believed that organizations have an important role to play in facilitating their emergence, supporting their development and sustaining their activities, to reap their full benefits (APQC 2001; Deloitte Research 2001). The literature is full of “one-fits-all” advice on how to launch and sustain communities of practice (CoPs). With few exceptions (APQC 2001; Wenger et al.

2002), the literature treats all CoPs as similar, with undistinguishing features and undifferentiated identities. Our research, however, shows that VCoPs vary in terms of their basic characteristics (Dubé et al. 2003). For example, some VCoPs are unrecognized by the host organization, while others are officially sanctioned and legitimized, or even supported and granted official status. Other VCoPs may include a large group of people from many disciplines scattered around the world or a few experts located in the same city. Different combinations of characteristics give VCoPs an infinite variety of faces, highlighting the need for a contingency approach in their management.

2. Investigating a VCoP’s structuring characteristics

The term “structuring characteristics” refers to the rather stable elements that could be used to describe a VCoP if one wanted to take its picture at one point in time (Dubé et al. in press). Although some of these characteristics, such as level of maturity, may evolve in time, most are settled at the launching stage and remain stable throughout the community’s life. Based on an extensive literature review, a previous study (Dubé et al. 2003) identified a typology of 21 structuring characteristics on which VCoPs may differ and be compared. This typology is presented in Table 1. In addition to providing a useful framework to better understand VCoPs, the typology was used to study in detail three communities. It

became clear that VCoPs vary greatly in terms of structuring characteristics and that, while some of these characteristics may positively influence the VCoP's life, others may create challenges that need to be attended to. Research focusing on the dynamics taking place during the launching phase of a VCoP reveals that some structuring characteristics are more conducive to success at this stage than others (Dubé et al. in press).

Management practices can be put into place to counter the challenges due to a VCoP's specific combination of structuring characteristics. A practice is here defined as any actions or decisions made by management and influencing the VCoP's life. Our previous research clearly suggests that "one-fits-all" advice on how

to manage and sustain communities of practice is not appropriate. Instead, this paper posits that the success of a VCoP is the result of a series of management practices that respond specifically to the challenges and opportunities faced by the community because of its structuring characteristics. Among those practices, how the VCoP's leadership team is managed by the organization is of utmost importance. While the role of a community leader has been frequently studied (Fontaine 2001; Lesser & Everest 2001; McDermott 2001; Wenger & Snyder 2000), little is known about how the leadership team can be used to counteract the challenges arising from the VCoP's structuring characteristics. This is the focus of this paper.

Table 1: Typology of VCoPs' structuring characteristics

Structuring Characteristics		Brief Definition
Demographics	Orientation	Refers to the overall objective: strategic implications or operational efficiency.
	Life span	Refers to the time period for which the VCoP is created: temporary basis (specific purpose) or permanent (not defined).
	Age	Defines the period of time the VCoP has been through.
	Level of maturity	Refers to the phase reached by the VCoP.
Context	Creation process	Can be orchestrated by management (top-down) or be spontaneously created by interested members (bottom-up).
	Boundary crossing	Refers to the number of boundaries across work groups, organizational units and even organizations.
	Environment	Forces from the larger context include the characteristics of the environment, the culture and subcultures of the organization(s) involved, the management style(s), and the political context.
	Organizational slack	Refers to the resources available to the organization to allocate to the community in order to absorb the costs associated with the non-productive phases inherent to the learning curve.
	Degree of institutionalized formalism	Refers to the degree to which a VCoP has been integrated to the formal structure of an organization.
	Leadership	Refers to the governance structure; individuals can be appointed to specific roles or roles can be left to emerge through interaction.
Membership	Size	Refers to the number of members in the VCoP.
	Geographic dispersion	Refers to the physical location of the participants.
	Members' selection process	Refers to the type of membership: an open membership (anyone can become a member) or a closed one (selected members only).
	Members' enrollment	Refers to the way people enroll: on a voluntary or compulsory basis

Structuring Characteristics		Brief Definition
	Members' prior community experience	May be created from an existing network of individuals or a new group of people can be assembled for the first time.
	Membership stability	Membership may be relatively permanent, but can also have more fluidity.
	Members' ICT literacy	Refers to the general level of comfort and experience of members with technology.
	Cultural diversity	Refers to the mix of national, professional, and organizational cultures assembled into a VCoP.
	Topic's relevance to members	While day-to-day topics may vary, VCoPs are usually assigned a broad theme or objective that may be more or less relevant to its members' daily work.
Technological environment	Degree of reliance on ICT	While a CoP needs to be predominantly using ICT to be called "virtual," VCoPs may use technology to varying degrees.
	ICT availability	Refers to the means that are available for interaction (in addition to phone, fax, teleconference and e-mail).

(Adapted from Dubé et al. 2003)

3. Role of the community's leadership team

When it comes to community leadership, most authors (e.g., McDermott 2001; Wenger & Snyder 2000) have focused on the assignment of a facilitator or a sponsor to the community. By doing so, the organization defines the leadership structure of the VCoP. As shown in Table 1, we believe that decisions regarding the identification of specific roles to be played are among the initial decisions that help define what a community is. There are what we call a structuring characteristic.

However, beyond these initial identifications of roles, the way this leadership structure is managed throughout the VCoP's life is the result of the decisions and actions of actors in the organization. For instance, top management may choose, for political reasons, to keep a leader in his/her position even though this person has no abilities for the task at hand. Such a decision may seriously impede the success of the VCoP. Therefore, we must look beyond a community's leadership official structure to understand how this

structure is operationalized and managed throughout the VCoP's life in response to the challenges and opportunities faced by the community.

While studying how organizations may support their CoPs, Fontaine (2001) identified 11 formal and informal roles needed to keep communities afloat (Table 2). Among those roles, two are considered leadership roles: leaders and sponsors. Fontaine's definition of the various roles taken by community members is a first step in understanding how leadership's actions may influence a community's success. Moreover, his typology provides an insight as to which responsibilities are associated with each role. However, it falls short of investigating how decisions regarding those roles should be carried out to maximise the benefits of a VCoP. In order to fully comprehend how the VCoPs' leadership team may counteract, by its actions, the challenges arising from their structuring characteristics, we need to go beyond the identification of roles, and focus more closely on how these roles are being managed during the VCoPs' life.

Table 2: Typology of community roles

	Role	Description
Knowledge Domain Roles	Subject Matter Experts	Keepers of the community's knowledge domain or practice who serve as centers of specialized tacit knowledge for the community and its members.
	Core Team Members	Looked upon for guidance and leadership before or after a leader emerges or is selected; guidance includes developing the community's mission and purpose.

	Role	Description
	Community Members	Take active ownership in the community by participating in its events and activities and driving the level of commitment and growth of the community.
Leadership Roles	Community Leaders	Provide the overall guidance and management needed to build and maintain the community, its relevance and strategic importance un the organization and level of visibility.
	Sponsors	Nurture and provide top-level recognition for the community while ensuring its exposure, support, and strategic importance in the organization.
Knowledge Intermediary Roles	Facilitators	Network and connect community members by encouraging participation, facilitating and seeding discussions and keeping events and community activities engaging and vibrant.
	Content Coordinators	Serve as the ultimate source of explicit knowledge by searching, retrieving, transferring and responding to direct requests for the community's knowledge and content.
	Journalists	Responsible for identifying, capturing, and editing relevant knowledge, best practices, new approaches and lessons learned into documents, presentations and reports.
Community Support Roles	Mentors	Act as community elders, who take a personal stake in helping new members navigate the community, its norms and policies and their place in the organization.
	Admin/Events Coordinators	Coordinate, organize and plan community events or activities.
	Technologists	Oversee and maintain the community's collaborative technology and help members navigate its terrain.

(Adapted from Fontaine 2001)

When considering the actions of the VCoPs' leadership team, three entities are included: (1) the management team of the organization, (2) the officially designated sponsor, and (3) the VCoP's leader. In this paper, however, we focus on how the organization manages its VCoP. Therefore, we will scrutinize the actions and decisions of people managing the VCoP (i.e., management team and sponsor) and not include in our investigation the individual actions of the leader in his/her VCoP.

4. Research method

To investigate the actions of their leadership team, the experiences of eight VCoPs implemented in eight different organizations (six in public organizations, one in a private one, and one in a professional or union organization) were scrutinized over a six- to nine-month period. The study reported here is part of a larger longitudinal action research project that is described in detail in earlier papers (Dubé et al. 2003; in press). In addition to the management team of the sponsoring organization, all VCoPs had a prescribed leadership structure: a senior manager, called sponsor, was the project's representative at the executive level. The leader was the person responsible for the overall guidance and management of the

VCoP; s/he helped build and maintain the VCoP, encouraged participation, helped direct attention on important issues and brought new ideas to energize the VCoP if required. Finally, the research team assigned each VCoP a coach who had the mandate to help the leaders in their daily tasks. Interacting on a regular basis, the coaches played the role of both a consultant and a confidant. Although the role of a coach was not identified in Fontaine's typology (2001), we created it to provide our inexperienced leaders with additional guidance. Because the coaches worked closely with both the organizations' management and the VCoPs' leaders, we found it appropriate to include them in our scrutiny of the actions of the VCoPs' management teams.

Two data collection sources have been mainly used for the analyses reported here (see Dubé et al. in press for a detailed description of the data collection process). First, a research assistant was responsible for regularly communicating with each coach in order to gather and record any developments in each community's life. The information collected relates the dates and contents of meetings, the decisions taken by the community's leader and their consequences, critical and anecdotal events, the coach's perceptions of the members' participation, and so on. This

rigorous logging resulted in a detailed diary, up to 35 pages-long per community, documenting every event that occurred in each community during the time of the research project.

Second, on two occasions during the research project, community members were asked to complete a total of eight on-line questionnaires that were designed to gather information about their experience. The first four questionnaires were used to characterize various aspects of the communities and their members at the onset of the research project; the second round of questionnaires were responded to at the end of the data collection period, and granted quantitative data regarding, among other things, the VCoPs' success and the members' evaluation of their leaders' actions. The quantitative data reported in this paper come from the latter round of questionnaires. The response rate for these questionnaires was 46.7 %

(106 respondents out of 227 community members).

5. Analysis and coding

5.1 Structuring characteristics

Before assessing the joint impact of structuring characteristics and the leadership team's actions on VCoPs' success, it was first necessary to classify each of them on the basis of their structuring characteristics. For the purpose of the analysis described here, we used the classification performed for an earlier study (Dubé et al. in press), selecting only those VCoPs that were successfully launched, and whose members had filled out the questionnaires. Only the characteristics on which the remaining VCoPs varied were kept for further analyses. Table 3 shows the resulting classification.

Table 3: Structuring characteristics

VCoP	A	B	C	E	G	H	I	J
Boundary crossing	High	Low	Low	Medium	Medium	Medium	High	High
Environment	Facilitating	Facilitating	Obstructive	Facilitating	Neutral	Facilitating	Obstructive	Neutral
Organizational slack	Low	High	High	High	Low	High	High	High
Institutional formalism	Supported	Supported	Supported	Institutionalized	Supported	Supported	Supported	Supported
Geographic dispersion	Medium	Medium	Medium	Medium	Medium	Medium-Low	Medium	Medium
Enrollment	Voluntary	Voluntary	Compulsory	Mixed	Mixed	Compulsory	Voluntary	Voluntary
Prior experience	None	None	None	Extensive	Low	Medium	None	Low
Membership stability	Stable	Moderately stable	Fluid	Stable	Moderately stable	Fluid	Moderately stable	Stable
ICT literacy	Low	High	Low	High	Low	Medium	Medium-High	Medium
Cultural diversity	Medium	Homo-geneous	Homo-geneous	Medium	Medium	Homogeneous	Heterogeneous	Heterogeneous
Topic's relevance	High	Low	High	Medium	Low	High	High	High
Reliance on ICT	High	High	Medium	Medium	High	High	High	High
ICT availability	Low	High	Low	Low	Low	Low	High	Low

(Adapted from Dubé et al. in press)

5.2 Actions of the leadership teams

Based on Miles & Huberman's (1994) recommendation, we created a set of

matrices that allowed us to extract the relevant data and to perform intra- and inter-case analyses (Yin 1994). The matrices displayed all leadership teams' actions (and obvious lack thereof) by

VCoPs (see Table 4). We then organized the extracted practices by structuring characteristics and by leadership actions.

Table 4: VCoPs' challenges and leadership actions

CoP	Challenging Structuring Characteristics	Leadership Actions	Overall Success
A	<ul style="list-style-type: none"> - No organizational slack - No prior community experience - Very low ICT skills - Difficult access to technology in some cases 	<ul style="list-style-type: none"> - Hired a full-time leader; very involved leader - Leader selected based on her skills 	High
B	<ul style="list-style-type: none"> - No prior community experience - Low topic's relevance 	<ul style="list-style-type: none"> - Full-time leader - Good leader's selection and involvement - Good sponsor's involvement 	High
C	<ul style="list-style-type: none"> - Obstructive environment - Drafted members - No prior community experience - Low ICT skills 	<ul style="list-style-type: none"> - Choice of a leader that did not have the time, nor the health to assume such a demanding work. - Little support from top management; sponsor left organization and nobody took up his role - Leader finally replaced by a very inexperienced one - High level of involvement from the coach 	Medium
E	<ul style="list-style-type: none"> - Extensive community experience - Software problems 	<ul style="list-style-type: none"> - Good leaders' selection and involvement - Leaders were given 30 min./week to do their job 	High
G	<ul style="list-style-type: none"> - No organizational slack - Low community experience - Very low ICT skills - Top-down approach: Starting a VCoP without involving local management - Mix of voluntary and drafted members 	<ul style="list-style-type: none"> - No time given to the two leaders to do their job (one was clearly less involved) 	Low
H	<ul style="list-style-type: none"> - Drafted members 	<ul style="list-style-type: none"> - Very involved sponsor - Good involvement of top management - Problem with leaders' selection 	Medium
I	<ul style="list-style-type: none"> - Obstructive environment - No prior community experience - Heterogeneous group of people 	<ul style="list-style-type: none"> - Full-time leader - Good leader's selection and involvement - Good support from sponsor and top management 	High
J	<ul style="list-style-type: none"> - Low community experience - Heterogeneous group 	<ul style="list-style-type: none"> - Full-time leader - Very motivated leader 	Medium

5.3 Success

Although there is no real consensus on the definition of success, the literature usually identifies two forms of success (APQC 2001; Wenger et al. 2002). Effectiveness refers to the VCoP's actual impact and encompasses: 1) the meeting of the community's initial objectives (Cothrel & Williams 1999); 2) the value provided to the organization (Lesser & Everest 2001); and 3) the benefits to its members (Cothrel & Williams 1999; McDermott 1999; 2001). The second dimension of success, health, corresponds to the process by which the results were obtained, and includes: 1) member satisfaction (Adams & Freeman 2000); and 2) level of activity, i.e. level of interactions among members (APQC 2001).

Of these five dimensions, one (i.e., level of activity) was evaluated by the research

team based on the communities' logs, and four were assessed by members, using the on-line questionnaires. For example, in order to evaluate their satisfaction, members were asked to indicate their level of agreement with the five statements, including: "I am satisfied with my participation in the VCoP" and "I would be interested in continuing to participate in a VCoP" (1 = totally disagree; 7 = totally agree). Based on this data, we built a combined measure of success and conducted an analysis of variance [$F(7, 87) = 3.75; p \leq 0.001$], followed by a Scheffe post-hoc test, to classify the level of success obtained by the eight communities (see Table 4, column 4 for the results).

6. Results

The analysis process leads to a better understanding of each VCoP. We will first

discuss the highlights of the life of each VCoP, emphasizing the major challenges that it experienced and the most important leadership team actions or lack thereof that were taken. We will then discuss what actions seem to be leading to success under differing configurations of structuring characteristics.

6.1 VCoPs' short life stories

Despite the high priority given to VCoP A, its host organization could not initially allocate it any financial resources due to a lack of slack. However, management worked hard to convince a government agency to subsidize the project. This money was put to good use; a full-time leader was hired based on specific selection criteria. Since the VCoP members did not know each other and had very little technological skills - and, in some cases, no technological support from their employer - the leader devoted a lot of effort to winning them over and to communicating with each of them individually. Working closely with this inexperienced leader, the coach also played an immense role in the high level of success of this VCoP.

VCoP B faced two specific challenges. Voluntary participants had never worked together and the community's topic was not highly relevant to their daily work. However, since the project was important for top management, it received ample exposure and was granted an appropriate budget, which made it possible to appoint a full-time leader. Thanks to his communicative enthusiasm, the leader succeeded in convincing the VCoP members of its long-term benefits on their job, therefore managing to recruit enthusiastic participants. Helped by the sponsor's high level of involvement and by the coach, the leader secured political and financial support from the organization. These resources, combined with members' commitment, allowed him to implement highly creative ideas, and to use a vast array of communication media, including monthly audio-conferences and individual phone calls. This contributed to the VCoP's high level of success.

Many of VCoP C's structuring characteristics represented challenges. Its members, who were not used to sharing and working together, were drafted and their level of ICT literacy was very low

while the CoP's reliance on ICT was significant. In addition, the VCoP was launched in an obstructive environment that got even worse when the role of its host organization, a government agency, was questioned and redefined. Despite its "official" high priority status, the VCoP was often overlooked by top management due to more pressing issues. In addition, the VCoP successively lost several important players: the top manager and the sponsor left the organization, and the leader, who was initially too busy to fully play his role, became very ill and had to take an extended sick leave. Nonetheless, this VCoP reached a moderate level of success, mainly because its coach, in many occasions, completely took over the role of leader. However, because of this lack of ownership, this VCoP will doubtfully survive for a long period of time.

VCoP E, on the other hand, started with an advantageous situation. The only challenge it faced at the onset was that of transitioning from a face-to-face to a virtual CoP, in order to reach more continuous levels of information sharing. However, the decision by management not to fund the purchase of appropriate software highly influenced the life of this VCoP. Members found the chosen software inadequate and openly complained about it, making the transition from a CoP to a VCoP hard to accept. If the VCoP managed to reach a high level of success, it is thanks to the work of the leaders. Two persons shared this role, one was responsible for the content and the other for the process. Although each was allocated 30 minutes/week to work on the VCoP, the content leader, fully supported by the coach, made a high priority of this project and committed much more time to her role. She showed how using virtual tools to support the community was an added benefit and individually coached the members on the use of the tools they had to make do with. She also maintained regular face-to-face meetings in order not to break from their previous habit, but members requested that more time be freed so that they could fully participate in daily interactions through a virtual communication space. Overall, this VCoP reached a high level of success.

VCoP G's initial situation was very challenging. This community was set in a government agency with scarce financial

resources. Initiated by the agency's top management, the project aimed at bringing together several regional offices that had little experience working together. Some offices were therefore a bit reluctant to participate. Each designated one member to join the VCoP, not necessarily selecting the most enthusiastic participants. In addition, the overall level of ICT literacy in this agency, and therefore in the community, was very low. Free to choose the community's specific object, the members dismissed many potentially relevant topics because they were supposedly too sensitive or controversial. They finally agreed on a "lukewarm" theme that had little relevance to most members. Time spent working on the community also became an issue. Few members understood the relevance of spending time participating in the VCoP and the two leaders, who were not exempted from their other responsibilities, did not have time to give each participant individual attention. Despite their attempts at refocusing the VCoP and the enthusiasm of a few participants, central management was never able to rally the troops to its objective and was not able to sell its project to the regional office managers. Overall, the VCoP survived but reached a low level of success.

Contrary to G, VCoP H started out with promising conditions, among which was a facilitating environment. Implemented in a public service agency, this VCoP was the occasion to get experts to work together on a specific issue that the media were pressuring the government to act upon. Although they were drafted, the participants were enthusiastic since the issue was highly relevant to them. However, with time, the pressure faded and the issue no longer remained a priority. In addition, leadership difficulties made it hard to sustain interest among community members. The two initially designated leaders lacked availability, and never succeeded in clearly establishing their respective roles and coordinating their efforts. During their vacations, they were temporarily replaced by two people who were reluctant and too busy to fulfill this job well. Moreover, one of the leaders had to be replaced because he could not adjust to the new software used by the VCoP. A new leader, chosen for political reasons, was then named, but had to go on a sick leave. Therefore, despite a high

involvement of the sponsor, the management, and the coach, leadership remained an issue and the VCoP could only reach a moderate level of success.

Initiated by a government agency, VCoP I started with very challenging environmental conditions. Its objective was to gather into a single VCoP people from different organizations that had never collaborated and were even seen as competitors. The project received resources and was assigned a full-time leader who put much effort into defining the needs of all organizations involved and establishing a working process that would be acceptable to all. The high level of success reached by this VCoP can be attributed to the leader. Thanks to his skills and knowledge of this sector, he was able to sweep away any objections and to reach a common definition of focused objectives. Using individual and group interactions, formal and informal meetings, face-to-face and virtual communication, he united this heterogeneous group of people around a common cause.

Set up in a government agency, VCoP J received some support from its organization, including a motivated leader and a good commitment from top management. However, membership was this community's biggest challenge. Members formed a heterogeneous group of people who had little experience working together and little available time to invest in the VCoP. Some members were used to a hierarchical approach and were reluctant to share their expertise with colleagues. The community reached a moderate level of success, mainly because the leader managed to convince some experts to join in, and devoted much effort to encouraging members to post messages on the virtual discussion forums. Despite his efforts, and sufficient IT training, to make sure that everyone could use the technological tools, active participation remained limited to a few members. Because of this lack of ownership, it is unclear that this VCoP will survive in the long term.

6.2 Investigating the actions of the leadership teams

Comparing the life of the VCoPs allows us to identify the challenges they experienced due to their structuring characteristics, as

well as the actions taken by their leadership team to overcome these difficulties.

Before investigating the actions that were taken by the leadership team, let's look at the importance of the leaders' role in the VCoPs. In the questionnaires, we asked the VCoPs' members to evaluate how

satisfied they were with the way their VCoP was led (scale from 1 to 5 where 1 = not at all satisfied and 5 = very satisfied). An analysis revealed that satisfaction was significantly correlated with both the overall measure of success, and the four dimensions of success evaluated by members (Table 5).

Table 5: Correlation between satisfaction with the way the VCoP was led and success

		Success (combined measure)	Meeting objectives	Value to organization	Benefits to members	Member satisfaction
Satisfaction with the way the VCoP was led	r	.71***	.74***	.58***	.33**	.63***
	n	87	77	86	77	87

*** p ≤ 0.001; ** p ≤ 0.01; * p ≤ 0.05

Second, we asked the VCoPs' members to what extent their leader took specific actions (scale from 1 to 7 where 1 = strongly disagree and 7 = strongly agree). Again, correlation analyses revealed that some specific actions taken by the

community's leader were significantly related to either the combined measure of success, or to some dimensions of success. Table 6 shows the most interesting results of the correlation analyses.

Table 6: Correlation between leaders' actions and success

		Success (combined measure)	Benefits to members	Member satisfaction
Elicited members' interest for the task at hand	r	0.29	0.27	0.48*
	n	24	24	24
Individually helped members when they encountered problems	r	0.32	0.45*	0.48*
	n	24	24	24
Provided members with expertise regarding IT collaborative tools	r	0.59**	0.55**	0.75***
	n	24	24	24
Monitored the CoP's progress and kept members informed	r	0.26	0.25	0.44*
	n	24	24	24

*** p ≤ 0.001; ** p ≤ 0.01; * p ≤ 0.05

Congruent with previous works (e.g., APQC 2001), our results indicate that the way the leaders exert their role is crucial to the success of VCoPs. In our sample, all communities had a similar leadership structure. Yet, at the end of the study, the VCoPs had reached various levels of success and the members' satisfaction toward how their VCoP was led varied. This result, in and of itself, indicates that defining a clear leadership structure is not a panacea and will not automatically conduce to success. The way the leadership team fulfills its obligations seems to be more important than the mere fact of assigning roles, especially for communities facing obstructive conditions due to some negative structuring characteristics. In our study, three communities (A, B and I) were able to overcome challenging initial conditions

thanks to the actions taken by their leadership team. On the other hand, lack of enthusiasm and poor actions from the leader did not allow VCoP H to obtain more than a medium level of success, despite very promising initial conditions. These results show that the leadership team, especially the organization management team and the sponsor, needs to take actions so as to ensure that the leader, supported by his/her coach, can effectively play its role in the community.

Therefore, we believe that, in order to allow a community to reap its full benefits, the first thing the organization management team and sponsor should act upon is its operational leadership. Three elements seem crucial here: 1) the amount of time the leader can devote to the

community; 2) the leader's selection based on his/her personality, enthusiasm, and skills; and 3) the presence and selection of a coach.

Three out of the four highly successful VCoPs had a full-time leader. Having a leader that has the time to fruitfully play his/her role seems a key factor of success. As shown by the experiences of VCoPs A and B, it takes time to sell the VCoP's objectives to the participants, to closely follow the community, to make timely interventions, to develop innovative ideas to stimulate and encourage participation. The leader may also need time to individually coach and support participants, as did VCoP A's leader when some members experienced technological problems. As Table 5 demonstrates, finding time to help members on an individual basis, especially when it comes to the technological aspect of their participation, is significantly related to a higher level of participants' satisfaction and, overall, to the VCoPs' success. Time may also be required to thwart an obstructive environment with political actions, as did VCoP I's leader.

The fourth community that reached high success, E, did not have a full-time leader but it experienced fewer challenges at the onset since the community had already existed for a while. Splitting the leader's role between two persons to ensure that the load is shared does not seem to be the ultimate solution. Three VCoPs in our sample chose this approach, but in two cases, E and G, the workload was poorly distributed, which led to frustrations. In the third VCoP, H, having two leaders caused additional coordination problems. While specific tasks may be delegated, having a clearly and well-identified leader seems to represent a better option.

Selecting the leader is also an important decision management has to make. In congruence with McDermott (1999; 2001), we found that the success of many of our VCoPs (i.e., A, B, E, and I) can be traced back to their leader's personality, enthusiasm, and skills. When the group has no prior community experience, as was the case of VCoPs A, B, I and J, a dynamic leader can help people find a common ground. Among the skills that a leader should possess are the mastering of technology and the ability to teach

members how to use it in an effective manner. VCoPs A and E are examples of successful communities in which the leader deployed a great deal of effort to train members and to convince them to use the IT tools. In both cases, the involvement of the leader helped the community overcome a less-than-perfect initial condition, be it a low level of ICT literacy (VCoP A) or an inadequate software (VCoP E). Technological support was less important in the case of the two other highly successful VCoPs (B and I) since these VCoPs' members already had in general a medium to high level of ICT literacy. On the other hand, a leader chosen for the wrong reasons and who lacks either interest in the community or affinity with technology will constitute a hindrance rather than a help on the road to success, as seen with VCoPs C and H.

One final consideration for management is the decision to assign a coach to the VCoP. In our study, VCoPs A, B, C, and E greatly benefited from the presence and the availability of a coach, especially since the leaders were inexperienced in their role and needed advice from a neutral third party. Organizations in our sample had no say in the choice of the coaches. However, management could choose to assign a coach to the newly formed VCoPs, or to the VCoPs whose leaders are inexperienced. Alternatively, they could ask the VCoP's sponsor to fulfill the guidance role played here by the coach. However, this role has to be clearly circumscribed so as to not encroach upon the leader's task. In VCoP C, the coach's involvement went too far as he fulfilled the leader's job while he was absent. While this may have brought the VCoP to a moderate level of success, this lack of ownership is not sustainable in the long run.

These results show the importance the organization or the sponsor has in helping an intentionally-formed VCoP succeed. The mere selection or identity of the sponsor is an important factor. One questionnaire asked respondents to rate the perceived impact of the sponsor's identity on a 7-point scale (1 = very negative impact; 7 = very positive impact). Results indicate that participants believed that the sponsor's identity had an impact on their perceptions that the community would be a flourishing and successful

project (Mean = 5.05, S.D. = 1.23), and that it would reach its objectives (Mean = 4.93, S.D. = 1.15). They also believed that the sponsor's identity had an impact on their initial involvement in the community (Mean = 4.68, S.D. = 1.22) and on their willingness to participate (Mean = 4.77, S.D. = 1.25).

In addition, fostering a VCoP's development or being a sponsor requires more than symbolic work (Dubé et al. 2004). In our four successful VCoPs (A, B, E and I), involved sponsors and top management took an active role in selecting the right people, getting resources, and helping solve major issues as they occur. One other VCoP (H) had a very involved sponsor. However, this community only reached a medium level of success due to a change of organizational focus. The objectives of this VCoP lost their priority as other more important organizational issues emerged.

7. Concluding remarks

Our study suggests that decisions regarding operational leadership are important decisions management and sponsors can make to positively influence the negative impacts of structuring characteristics (especially an obstructive environment, no prior community experience and a low level of ICT skills) on an intentionally-formed VCoP's overall success. Among the communities in our sample, those whose success exceeded initial expectations had very involved leaders who possessed the ability to build political alliances, to foster trust, and to find innovative ways to encourage participation. These people ended up in this important position because a member of the organization's management team or the sponsor had decided that they had the right set of abilities and should be selected and given the resources (often time) that were needed to do their work well.

However, to help organizations choose the best people, more research needs to be done to investigate the profile of successful leaders. While the literature broadly defines the role of leaders in CoPs (Fontaine 2001), little is known about facilitating in a virtual environment (notable exceptions are Pauleen & Yoong 2001). Much has been done in a Group Support System environment (e.g., Kelly &

Bostrom 1998), but investigating if the knowledge acquired in these environments may literally apply to VCoPs remains to be done.

Furthermore, relying on the leader alone to ensure a VCoP's success may be risky. Leaders are sometimes inexperienced in their role, and even the most enthusiastic ones may need advice. Although the role of coach was not identified by Fontaine (2001), we found that having a neutral third party working closely with the leaders to advise them played a crucial role in the success of VCoPs A, B, E and I. More research is needed to study this coach-leader team that seems to contribute very highly to the success of some VCoPs.

However, although crucial for the VCoP's success, the leader and the coach should not take the place of the members who have to take ownership of the community. Three VCoPs in our sample, C, G and J, reached unexpected success due to the job of an exceedingly involved leader-coach team, but it is doubtful that these communities will survive if the members cannot assume ownership. This question remains to be investigated in a longitudinal study of VCoPs.

Finally, the results clearly show that the leader has an important influence on a VCoP's success and that the decisions regarding the leadership of a VCoP are not only in the hands of its leader, but also among the responsibilities of the organization's management team and the sponsor. While a VCoP needs room to grow, initial decisions regarding the operational leadership need to be regularly monitored, evaluated and actions taken if the situation is not satisfactory (Dubé et al. 2004). This is the only way full benefits can be reaped out of intentionally created virtual communities of practice.

Acknowledgement

CEFRIO and all participating organizations are gratefully acknowledged for providing financial support for this research. The authors wish to thank their fellow researchers and research assistants working on this project.

A previous version of this paper was presented at the International Conference

on Intellectual Capital and Knowledge Management in Toronto in 2004

References

- Adams, E.C. & Freeman, C. (2000) "Communities of practice: Bridging technology and knowledge assessment," *Journal of Knowledge Management*, Vol.4, No.1, pp38-44.
- APQC (2001) *Building and Sustaining Communities of Practice: Continuing Success in Knowledge Management*, American Productivity and Quality Center, Houston, Texas.
- Cothrel, J. & Williams, R.L. (1999) "On-line communities: helping them form and grow," *Journal of Knowledge Management*, Vol.3, No.1, pp54-60.
- Deloitte Research (2001) *Collaborative knowledge networks: Driving workforce performance through web-enabled communities*.
- Dubé, L., Bourhis, A., & Jacob, R. (2003) Towards a typology of virtual communities of practice, [online], *Cahiers du GReSI n° 03-13*, <http://gresi.hec.ca/cahier.asp>.
- Dubé, L., Bourhis, A., & Jacob, R. (2004) "Structuring Spontaneity": the Impact of Management Practices on the Success of Intentionally Formed Virtual Communities of Practice, [online], *Cahiers du GReSI n° 04-20*, <http://gresi.hec.ca/cahier.asp>.
- Dubé, L., Bourhis, A., & Jacob, R. (in press) "The Impact of Structural Characteristics on the Launching of Intentionally Formed Virtual Communities of Practice," *Journal of Organizational Change Management, Special Issue on Organizational Transformation and E-business*.
- Fontaine, M. (2001) Keeping communities of practice afloat. *Knowledge Management Review*, Vol.4, No.4, pp16-21.
- Kelly, G.G. & Bostrom, R.P. (1998) "A facilitator's general model for managing socioemotional issues in GSS meeting environments," *Journal of MIS*, Vol.14, No.3, pp23-44.
- Lesser, E. & Everest, K. (2001, March-April) "Using communities of practice to manage intellectual capital," *Ivey Business Journal*, pp.37-41.
- McDermott, R. (1999) "Why information technology inspired but cannot deliver knowledge management," *California Management Review*, Vol.41, No.4, pp103-117.
- McDermott, R. (2001) "Knowing in Community: 10 Critical Success Factors in Building Communities of Practice," *Community Intelligence Labs*. <http://www.co-il.com/coil/knowledge-garden/cop/knowning.shtml> (last consulted: March 3, 2005)
- Miles, M.B. & Huberman, A.M. (1994) *Qualitative Data Analysis, An Expanded Sourcebook*, Sage, Beverly Hills.
- Pauleen, D.J. & Yoong, P. (2001) "Facilitating virtual team relationships via Internet and conventional communication channels," *Internet Research: Electronic Networking Applications and Policy*, Vol.11, No.3, pp190-201.
- Wenger, E., McDermott, R., & Snyder, W.M. (2002) *Cultivating Communities of Practice: A guide to Managing Knowledge*, Harvard Business School Press.
- Wenger, E.C., & Snyder, W.M. (2000, Jan-Feb) "Communities of practice: The organizational frontier," *Harvard Business Review*, pp139-145.
- Yin, R.K. (1994) *Case Study Research, Design and Methods* (2nd ed), Sage, Beverly Hills.