Collective Brokering Practice: A constellation of practices perspective

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Abstract

This paper studies the activities of boundary-crossing participants in a virtual environment. Research on collaborative learning generally focuses on communication within a group and pays little or no attention to interaction among and between groups, interaction which has conventionally been regarded as irrelevant to learning. Does any learning occur when learners cross group boundaries? When the perspectives of a variety of boundary spanners are introduced, learning becomes richly embedded in the infusion of the constant comparisons of differences which emerge from spanning multiple communities of practice (CoPs).

Traditionally, the broker is the person who has a clear goal in mind for bilateral mediation. Boundary spanners, on the other hand, begin with their personal motives. Once they cross the boundary, they look for whatever they need while at the same time encountering new ground and different conditions. This study considered people in the Cross Group Forum (CGF) to be boundary spanners and discovered a large amount of brokering activity there, where everyone enjoyed his/her freedom and scaffolded each other in a causal way. Boundary spanners have opportunities to form new sociations based on their common needs and become brokers of each other.

Three types of brokering activities have been identified: proactive, intensive and peripheral. Brokering activities can not be viewed as an individual endeavor as defined and dealt with in previous research. Instead, peripheral and intensive brokers contributed their diverse perspectives and problems generated in different CoPs; proactive brokers maintained a collegial and dialogical atmosphere by responding to every posting in a timely fashion. None of them engaged in traditional brokering activities such as agent, translator or coordinator. As a group, they provided a participative connection from which they collectively accomplished the enterprise of brokering. Using the "furnace" as a metaphor to delineate the online collective behaviors of brokers: peripheral and intensive brokers are "firewood collectors", proactive brokers are "warmers", and all of the lurkers in the CGF are "guests". This phenomenon can be designated "collective brokering practice".

Brokers' insights gained from multi-membership were pressed into service and applied when they tried to create satisfying ways of living and functioning in their own Within Group Forums (WGF). This process results in the emergence of new CoPs and exuberant learning -- revealed in constellations of practice.

Keywords

broker, boundary spanner, constellations of practice, communities of practice, group learning

Introduction

The concept of the boundary in group learning has been left largely unexamined. Research on collaborative learning typically focuses on the activities occurring within a group (Stahl, 2009), and far less attention has been given to the activity that takes place among and between groups. How observers perceive the notion of the group boundary in group learning matters is significant. For the majority of practitioners, boundaries between groups are considered to be a cordon sanitaire which effectively isolates differences and keeps entities at a distance; while others regard such boundaries as meeting places where differences collide, interlock, and influence one another (Kostogriz, 2006). There seems to have been insufficient attention paid to rethinking the boundaries of groups in relational terms. Practitioners typically regard instances of interaction with participants of other groups as irrelevant distractions and assume interaction among members within a group to be the most effective way to learn. However, learning does occur most effectively when it is an incidental by-product of genuine participation in meaningful activities -- as social learning theorists such as Lave (1988) have asserted. The new emphasis on the online boundary spanner, and whether or not meaningful action is limited to that which takes place within a group will be investigated to reshape the notion of brokers from a constellation of practice perspective.

This study investigates the practices of multiple online groups. In discussing what the proper unit of analysis and level of analysis should be, the immediate response, "group level", though an obvious one, may be an over-simplification. The existence of groups is certainly a necessary precondition for boundary crossing activities. Based on the assumption that the "working knowledge" and "ecological intelligence" generated within each online group may be quite different, Suthers (2005) asserted that Communities of Practice (CoP) are actually unique to each group. The concept of the CoP is employed here to analyze online groups and has been adopted as the proper level of analysis. Accordingly, the practice of many online groups should be viewed as a collection of online CoPs.

A large portion of this paper deals with brokers. Brokers are those participants who shift among CoPs. As people cross boundaries, they transfer some elements of their own practice into another. This practice of multimembership is considered brokering (Wenger, 1998). As learning communities become large and their interaction more intense, new centers of social life are created as new differentiated regions are spawned. Brokers make friends, exerte their sociability, and sooner or latter a new sociation develops. In associating with a new group, participants enjoy their boundary crossing roles and promoting the work done within their own groups. We are appropriately call attention to and employ Wenger's (1998) phrase, "constellations of practice", to describe linkages among various communities of practice. Wenger is the one who initiated this concept, though it remains somewhat vague. At this work, that concept will be more rigorously defined and established, the intent being to demonstrate that the constellation of practice is one of the essential ingredients for understanding learning among multiple online groups.

Brokering activities in constellations of practice online

The concept of broker is not new. It was introduced by Wolf (1956), who took an anthropological approach to examining brokers in Mexico and described the function of broker groups as: occupying an "exposed" position, facing in two directions at once, coping with conflicts raised by the collision of these differing interests, and acting as buffers between groups. This discussion of "broker" groups is insightful because the mediation activities taking place between groups do contribute to the integration of a complex social system. A similar term, boundary spanners, was recently introduced and defined by Sonnenwald (1996) as "communication or behaviour between two or more networks or groups".

The concept of the broker or boundary spanner has become widely used. It has been subsequently applied in various contexts such as school and district-level leaders (Cobb & McClain, 2006), numeracy coordinators (Corbin, 2003), prospective teachers (Friedrichsen, Munford, & Orgill, 2006), marginalized people across different clubs (Walker & Nocon, 2007) in schools and school districts, department managers in a company (Levina & Vaast, 2006), software engineering students and in a university-customer organization cross-community project (krogstie & Bygstad, 2007). These studies have enriched the meaning of the term by distinguishing between different sorts of brokers and giving them different labels. For example, Levina and

Vaast (2006) drew a distinction between "community-like" boundary-spanners, who are involved in producing boundary objects and negotiating their individual meanings as used by the different parties to create a joint meaning, and "market-like" brokers, who engage in connecting diverse parties together, helping them exchange objects, and negotiating the terms of exchanges. Barcellini, Detienne and Burkhardt (2008), on the other hand, concluded that the boundary spanner role is one that emerges through interaction and practice. Becoming a boundary spanner presupposes having developed skills and competences in the different spanned fields. Rather than brokers having ambivalent multi-membership relationships, suffering from the occupational hazard of uprootedness, and making contributions by being neither in nor out, as suggested by Wenger (1998), Sonnenwald (1996) showed that boundary spanners are well aware of all practices and have achieved legitimacy and credibility within all the domains they span. Other research even described them as occupying "high" hierarchical positions (Sarant, 2004).

What if brokers work online? Previous notions regarding brokers have not considered the phenomenon within online communities. The present study is an investigation based in an online context. How does the role of boundary spanners/ brokers emerge? What is their status? And how do boundary spanners/ brokers function in constellations of practice? Most of the research has been conducted on a large scale in such environments as the Lynex society (Engestrom, 2007), a profit-oriented company such as Design Products in Industry (Sarant, 2004), or transnational courses (Walker & Creanor 2005). This study probes a smaller community and tries to determine how boundary-spanning activities emerge in a competition-oriented online community. Participants are normally expected to remain and work in their own groups to accomplish their tasks. What is the status of the boundary-spanner in such an adversarial environment, given that group members owe allegiance to, and are expected to concentrate on the work of their own respective Communities of Practice?

Research questions

This study focuses on the following two questions:
1. What do boundary spanners (brokers) do, and how do they work together?
2. How does learning take place in constellations of practice?

Methods

The context

Two types of forums were constructed in an online environment, Lain (Learning Atmospheric science via InterNet). Of the 384 participants, 353 were high school students and 31 were facilitators. All of the participating students were assigned to 56 groups with 6 members in each group. These were defined as Within-Group Forums (WGFs). Another forum was designed for cross-group discussion, the Cross-Group Forum (CGF). All participants were permitted to contribute only to the single WGF with which they were affiliated, though they had read-access to articles posted in any WGF. All members were expected to contribute to their WGFs. Simply put, their homes were in their respective WGFs, and the CGF served as a public square.

Based on the fact that the combination of participants differed from group to group, each of the WGFs had its own practice and they therefore could be considered different and distinct CoPs. When participants crossed the boundaries of their own WGF to a CGF, they attended more than one CoP and therefore could be considered brokers in constellations of practice.

Participants in these WGFs had to find their own distinct paths while facing an array of similar learning difficulties. Firstly, most of the participants were unfamiliar with inquiry-based learning. Secondly, most of them were new to the real database. Thirdly, all teams had difficulties collaborating with strangers who engaged in different degrees of participation. These WGFs were parallel in terms of the tasks they normally dealt with and therefore the discussion that took place in one WGF was frequently referred to in other WGFs. As each contained only six team members, their resources were limited.

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Data analysis

Counting postings served as the baseline analysis. First, traditional participation and content oriented methods were applied. Discussion forum archives were chosen to probe the brokering activities that occurred in both the CGF and the 56 WGFs. Frequency counts of participant postings and coding and counting phenomena through content analysis were used to generate a general picture of their collective activities through individual posting behavior. There were 1905 postings in the CGF and 23255 postings in the WGFs. Of these, 101 postings in the WGFs were identified as containing information posted earlier in the CGF and were further analyzed. A data-driven strategy was developed to analyze both the 1905 and the 101 postings to discover possible relationships between the CGF and WGFs.

A deeper understanding of the context and a discourse perspective were needed, in addition to reductionist content analysis methods. Mayer (2004) has initiated work in this area and suggests that "it might be worthwhile to analyze the ebb and flow of online discussion as a group effort, rather than focusing on individual postings as a reflection". This is an approach toward apprehending the meaning of posts. Put in another way, "The meaning of a posting derives not from the content of its words, but rather from its interplay with what went before and what will come later…" (Emerson & Holoquist, 1981). Contextual information was mainly captured by analyzing the connections that existed among sequences of postings across time and events, especially when learners were shuttling between the CGF and WGFs.

The interview is another useful way to collect data. Data directly from participants helped shed light on other factors which might have affected participation. Interview data from 30 participants, ranging from proactive brokers to peripheral brokers, were conducted to examine the experiences they encountered in these two spaces.

Results

1 The issues with which the brokers concerned themselves

What do brokers do in the CGF? Based on a data-driven approach, the 1905 postings in the CGF have been sorted into 3 levels and six categories. The results are listed in Table 1. These figures can be interpreted in more than one way. At first glance, the most frequently mentioned topics are in the "community" level, followed by the "individual" level. The fewest topics appear in the "group" level. The most highly ranked category is "Community issues & practice". It seems that brokers were forming a new community, were enjoying personal contact with members outside of their assigned team, and were less involved in discussing issues occurring in their own groups with this new community.

Table 1: The distribution of categories of postings in the CGF

level	category	frequency	percentage	rank
Individual	Personal interests in domain knowledge	301	16	4
	Social talk	423	22	2
Group	Group inquiry in domain knowledge	167	9	6
	Coordination issues	214	11	5
Community	Sharing information & techniques	368	19	3
	Community issues & practice	432	23	1
	total	1905	100	

However, in contrast to the information provided by the figures, the meaning of practices in community versus group levels can be rediscovered and confirmed through complementary observation in the CGF. At the group level, participants shared the practices developed in their respective WGFs. They wanted to exchange ways of handling problems in their own CoPs, but, in general, they did not need to go any further to negotiate different opinions. It is a place for points of reference. There existed minor tension over issues at this level. However, at

the community level, participants bring distinctive values and norms, developed in their own WGFs, to the CGF. The negotiation of meaning does involve bids for ownership and thus the CGF is not solely a place for reference but also a place for cohabitation and collaboration. There exists therefore a great deal of tension over issues at the community level.

2   Different degrees of participation in being a broker

Two thirds of participants contributed articles in the CGF. These are all brokers with different degrees of participation. Participants are sorted into three categories according to the number of postings generated in this space. "Proactive" participants are those who posted more than 100 articles, while "Intensive" participants posted between 10 and 100 articles, and "Peripheral" participants posted between 1 and 10 articles. The distribution of the frequencies of the postings across these three categories is listed in Table 2. Five proactive brokers contributed 48% of postings, an average of 184 postings each. Seventy-nine percent of boundary spanners posted fewer than 10 articles and 17% of them posted between 10 and 100 articles.

Table 2: The distribution of brokers' postings in the CGF

Degree of postings	number	Percentage (%)	postings	Percentage (%)
Proactive	5	4	919	48.2
Intensive	21	17	674	35.4
Peripheral	100	79	312	16.4
Total	126	100	1905	100.0

It is apparent that the CGF became a space belonging to a few proactive people. We first examined the five proactive brokers by analyzing their individual postings and found 4 "social" brokers and one "cognitive" broker. As shown in Table 3, the bulk of the contributions of the 5 proactive brokers fall into the category "Personal interests in domain knowledge"(90%) and "social talk"(54%). The numbers circled are those to which each proactive broker contributed the most. Rainer focused predominantly on "Personal interests in domain knowledge", liiu_loves, ihil, and ash preferred to pursue "social talk", while Idiifee enjoyed "Community issues & practice" and "Sharing Information & techniques".

Table 3: The distribution of the postings of 5 proactive brokers in the CGF

proactive	Rainer	liiu_loves	ihil	ash	ldiifee	Total of	Total of	
category	frequency	frequency	frequency	frequency	frequency	5	126	%
Personal interests in domain knowledge	254	3	9	0	4	270	301	90
Social talk	42	80	38	59	11	230	423	54
Group inquiry in domain knowledge	7	9	21	16	19	72	167	43
Coordination issues	0	26	25	8	10	69	214	32
Sharing information & techniques	2	24	33	21	30	110	368	30
Community issues & practice	31	43	31	29	34	168	432	39
Total	336	185	157	133	108	919	1905	48

% = the total of 5 proactive brokers / total of 126 brokers

Consider the diverse interests of proactive brokers as shown in table 3. There did exist tensions and conflicts. For example, Rainer put a great deal of effort into cognitive issues while others stuck to soft talk. Rainer aspired to be the creator of an atmosphere for the discussion of domain knowledge by forwarding vast quantities of news related to earth science to the CGF. However, responses to these postings were exiguous, the majority people in the CGF having ignored them to discuss other matters. Although they sometimes focused on domain knowledge, as shown in Table 1, they were also interested in sharing ideas or data closely related to the

teamwork process (The category of "group inquiry in domain knowledge") and its application, instead of to the relatively unrelated subject of daily news (The category of "personal interests in domain knowledge"). Rainer was gravely disappointed at the reception his postings received and frequently questioned the nature and quality of discussions in the CGF as well as in the WGFs. Idea exchanges between Rainer and liiu_loves readily evoked further critical discussion on the part of many other participants. This kind of disagreement and challenges over the ownership of meaning in the CGF provided a great opportunity for boundary spanners to listen to local efforts and to connect them to broader styles and discourses, and eventually to seek out common ground.

Proactive brokers proved to be the exception. Of the 384 participants in Lain, one hundred posted fewer than 10 articles each and more than two hundred posted nothing. These people made up the overwhelming majority, 98.5%, of the Lain community. The remaining five people became the critical minority, who contributed 48% of total postings in the CGF. Surprisingly, according to the number of postings, four out of the five proactive brokers were also the most prolific posters in their own respective WGFs. For example, the number of postings contributed by Rainer, 154, comprised one fifth of the total postings (769) in his WCF group, a_11. In group d_01, liiu_loves ranked number one, with a contribution of 156 -- over one third of the total 586 postings. Similarly, the postings contributed by ihil (194), ash (586), and ldiifee (751) caused each to rank number one in his/her respective WGF. This ranking was determined by a comparison of their posting count with those of their teammates. Prolonged and continuous engagement in both an inactive WGF and the crowded CGF enabled the proactive brokers to develop appropriate ways to "host" people who shifted from a WFG to the CGF.

3   Collective brokering practice

Brokering can not be considered an individual endeavor. The 126 participants had different motivations and intentions when contributing postings in the CGF. How do they attract each other and function comfortably in the CGF in while expressing their own individual styles and talents?

The roles of intensive and peripheral brokers seem invisible relative to that of the proactive broker. Table 3 shows not only in what categories proactive brokers contributed the most, but also into what categories the other two types of brokers put their efforts. The 121 intensive and peripheral brokers contributed collectively 52% of the postings on issues at the "group" and "community" levels. It was they who introduced problems and concerns which had arisen in dozens of different WGFs. Their contributions, as a whole, demonstrated diverse perspectives and conflicts among teammates to the CGF so that the CGF became a valuable resource for participants to join.

The task of brokering online is accomplished collectively by distributed and diverse brokers. Taking the "furnace" as a metaphor to delineate the collective behavior of online brokers: peripheral and intensive brokers are "firewood collectors", proactive brokers are "warmers", and all of the lurkers in the CGF are "guests".

To be specific, peripheral and intensive brokers bring various ideas and problems from their respective WGFs. Although they do not necessarily post frequently, the CGF does nonetheless become full of controversial examples and stories with multiple points of view as a result. They gather enough firewood so that the furnace is never lacking material for sharing. On the other hand, proactive brokers remain present in the two spaces all the time. Using these greater opportunities to observe what is taking place in the forums, proactive brokers transform this experience to fit the regime and gradually become competent. They know that the majority of participants in the CGF need timely and warm replies, which they supply so that the threads are sustained. The initiators of threads always receive acceptance and encouragement. Problems and concerns raised are noticed and fully discussed. Proactive brokers are the ones who act upon a sense of duty to keep the furnace from "extinction".

Brokering may not be visible. Participation can not be captured and characterized entirely as the posting of articles, although postings are obviously one of the indices of participation online (Lee, 2005). Brokering behavior may be identified in those who post nothing in the CGF but contribute something somewhere else. The two thirds of participants in Lain who contributed zero postings were "guests". They enjoyed taking resources from the CGF and sharing them later in their WGFs.

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Brokering an enterprise online is done quite differently than in the real world. In the CGF, brokers do not play the role of bringing different perspectives, but take the initiative in maintaining an atmosphere that enables participants with different perspectives to share and receive feedback, and provides them with an environment in which they have opportunity and support. Instead of maintaining enough distance to bring a different perspective themselves (Wenger, 1998 p.110), brokers in the online environment facilitate by contributing postings in different ways. They share parts of what individuals have generated and exchange what the whole community needs. They themselves may not know what they have accomplished but altogether the CGF provides a "collective brokering practice".

4   The landscape of learning in constellations of practice

Boundary crossing within constellations of practice needs further investigation (Kubiak, 2003). The present study explores it with two approaches. From a microview, brokers' individual behaviors are recognized and their collective effects captured as shown above. In this section, a macroview is taken to provide a more contextual understanding of how learning takes place in constellations of practice.

It is the shifting movement between the CGF and WGFs that needs further investigation. Firstly, comparing the atmospheres of these two kinds of spaces provides a general picture. Given that there were 1905 postings in the CGF and 23255 postings in 56 WGFs, most of the WGFs tended to have fewer than 10 postings daily while there were 45 postings daily in the CGF. Obviously, the conditions for interaction in the two spaces were quite different. In the WGFs, the number of legitimate members was fixed and limited to 6 persons. Although it was easier for team members to commit to teamwork with fewer numbers, the ideas and resources generated by team-members were relatively limited. In contrast, the CGF space was open to more than three hundred participants. Both of these issues together with the differing participants themselves rendered them different. The engagement of participants might be partial and limited but they might well have overlapping as well as complementary forms of competence to contribute to the CGF. This resulted in different opportunities for learning to develop in the two spaces.

Comparing ourselves with "otherness" is an ongoing learning process. The traditional process of imagining pedagogical space quite often overemphasizes sameness or exoticizes differences (Kostogriz, 2006). Theoretically, members of each WGF produced a practice to deal with what they understood to be their enterprise. It is for this reason that they did not need to go through the process of negotiation of meaning with members outside their WGF. However, in this present study, we found that in the CGF the effects of interchanging practices in each other's WGFs were actually for the purpose of understanding the identity of one's own practice as dependent on the other for its meaning. For example, the solution for different degrees of participation in one WGF did not correspond perfectly with that of another WGF, as each team had a unique combination of participants, unique conditions and specific difficulties in collaborative learning. Local knowledge generated by one WGF might well not be appropriate for another team to adopt directly. The opportunity to scrutinize the differences between "ours" and "others" facilitated members of WGFs to develop their own practices, routines, and artifacts. Difference or otherness was therefore an extremely important resource for cross-boundary learning. These activities formed interconnectedness among participants, even though they belonged to different WGFs.

Secondly, the CGF has indeed a direct influence on the WGFs. We tracked the database archives of 56 WGFs to look for clues of any direct feedback from the CGF. One hundred and one postings, spread across 41 WGFs, were identified as being directly inspired by postings in CGF. These postings, either mentioning or forwarding paragraphs from the CGF, may be considered extended effects of the CGF on WGFs. Using an identical coding scheme, the sorting results are listed in Table 4. There is a dramatic difference on the group level between Tables 1 and 4. In Table 4, the extended effects of the CGF were primarily upon categories such as "Group inquiry in Domain knowledge" and "Coordination issues", while in Table 1, the CGF served as a place for sharing common needs such as "Community issues & practice" and revealing personal feelings and interests such as "Social talk". The activities in the CGF would be only superficially understood if Table 5 were not shown. In sum, the brokering activities in constellations of practices were quite complicated and influential. From WGF to CGF, the focus of participants was on "community level", while from CGF to WGF their concentration was on the "group level".

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Table 4: The distribution of 101 postings inspired by the CGF

level	category	frequency	percentage	rank
Individual	Personal interests in domain knowledge	0	0	
	Social talk	0	0	
Group	Group inquiry in domain knowledge	49	48.5	1
	Coordination issues	24	23.8	2
Community	Sharing information & techniques	7	6.9	4
	Community issues & practice	21	20.8	3
	total		100.0	

Finally, learning from brokering activities could even take place in a silent way. Surprisingly, 14 of the 56 contributors of the 101 postings were silent participants in the CGF. In other words, 14 participants were inactive in the CGF in terms of posting articles but did engage in delivering useful materials back to their own WGFs for further discussion. From this point of view, lurkers in the CGF might still be brokers demonstrating their participation in a subtle way. Given the understanding that members engaging in brokering were not limited to the 126 contributors of postings, we can suggest further that the CGF aligns the perspectives between the speakers and the silent members. When 126 contributors demonstrated their perspectives in the form of dialog, the majority of participants read these postings and negotiated silently with those ideas in mind. They then "appropriated" them into their own practice. This is how constellations of practice work.

Conclusions

The dependence of brokers on the premise of assigned role is inherently problematic for theorizing emergent constellations of practice. Theories are needed to explain how learners from different communities of practice, that lack pre-determined roles or goals, perform brokering behaviors. Some new light can be shed upon learners' activities when crossing boundaries within constellations of practice. Firstly, proactive brokers, even in a collection of competitive CoPs as in the present study, do not stay in ambivalent relations of multi-membership or in a hazardous state of uprootedness, as asserted by Wenger. Rather, they present themselves in the core of both the CGF and their own WGFs. They engage in brokering in some form, even if they don't do very much work. The core position can take many forms such as: interpersonal leaders who weave the community's social fabric, or institutional leaders who maintain links with another official hierarchy (i.e., facilitators in this study). In other words, proactive brokers vary widely.

Secondly, brokering activities can not be viewed as an individual endeavor as defined and dealt with in previous research. The CGF relied on the participation of boundary spanners from various WGFs, otherwise it would have been merely an empty forum. Three levels of boundary spanning behaviors were identified. Brokers did not function merely as buffers or negotiators between people from many CoPs. Instead, peripheral and intensive brokers contributed their diverse perspectives and problems generated in different CoPs; proactive brokers maintained a collegial and dialogical atmosphere by responding to every posting in a timely fashion. None of them engaged in traditional brokering activities such as agent, translator or coordinator. As a group, they provided a participative connection from which they collectively accomplished the enterprise of brokering.

Thirdly, the most interesting findings lie in the motivation of boundary spanners given the competitive environment. Basically, all postings were open to the public but boundary spanners would not steal ideas nor messages from the CGF for their own WGFs. All of the WGFs were parallel CoPs and did not have a joint enterprise component. However, because of the nature of the parallel relationship, they shared similar goals but reached them in different ways. For example, in multiple cases, they faced the similar situation of having different degrees of member participation and felt short of resources and enthusiasm within their own WGFs. They then went out to seek new sociation to satisfy their needs. Although they belonged to different CoPs, they related to each other at the level of constellations of practice. It is this practice that motivated them to be interconnected with each other.

Learning may take place through actions that cannot be seen, but also through visible actions that may be ignored. Learning through boundary-crossing is one such case and merits a clearer understanding of the picture

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of what boundary-spanning brokering activities have accomplished. Traditionally, the broker is the person who has a clear goal in mind for bilateral mediation. Boundary spanners, on the other hand, begin with their personal motives. Once they cross the boundary, they look for whatever they need while at the same time encountering new ground and different conditions. This study considered people in the CGF to be boundary spanners and discovered a large amount of brokering activity there, where everyone enjoyed his/her freedom and scaffolded each other in a causal way. Their insights gained from multi-membership were pressed into service and applied when they tried to create satisfying ways of living and functioning in their own WGFs. This process results in the emergence of new CoPs and exuberant learning -- revealed in constellations of practice.

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