Contemporary
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Behavior

From Ideas to Action

KIMBERLY D. ELSBACH
University of California, Davis

ANNA B. KAYES
Stevenson University

D. CHRISTOPHER KAYES
The George Washington University

PEARSON

Boston Columbus Indianapolis New York San Francisco Amsterdam
Cape Town Dubai London Madrid Milan Munich Paris Montréal Toronto
Delhi Mexico City São Paulo Sydney Hong Kong Seoul Singapore Taipei Tokyo
Making Virtual Teams More Innovative through Effective Communication

Jennifer L. Gibbs
Rutgers University
Cristina B. Gibson
University of Western Australia

Introduction

Many companies are using virtual teams to bring employees together from different parts of the world. The rise of new information and communication technologies (ICTs) such as email, Skype, instant messaging, smartphones, collaborative software, virtual conferences, and social media tools like wikis makes it possible for employees to work together across great distances and time zones. Some geographically distributed team members travel periodically so that teams can meet face-to-face while others never meet in person. Virtual teams are used in a variety of industries—they may be sales teams consisting of representatives for different regions or they may be software engineering teams or automotive design teams in charge of developing a new product or process.

Virtual teams are often used to make companies more competitive since they allow for team members in different locations with different skill sets and expertise to work together to innovate. Innovation is the process of sharing ideas and learning from one another by pooling their knowledge to come up with more creative solutions to problems facing the organization. In addition, virtual teams are flexible as they are often set up to work on a particular project and then disband when the project is completed, which means they can respond to organizational needs quickly as they come up. Although virtual teams have many advantages for companies, they also face challenges. Coordinating electronically can be more difficult and it may be harder to sustain interpersonal relationships and trust people one rarely or never sees. Virtual teams may not live up to their creative potential due to interpersonal conflicts, miscommunication, or lack of shared understanding that prevents members from sharing knowledge and ideas. Simply bringing people with the necessary skills and expertise together virtually does not guarantee they will be able to work together to develop new ideas.

Virtuality and Its Influence on Innovation

There are several aspects of virtuality that influence how well team members communicate and how innovative they are as a result: geographical dispersion, electronic dependence, dynamic structure, and national diversity. We have found that these structural features tend to limit team innovation.
Geographical Dispersion

*Geographical dispersion* refers to team members being located in different places. These locations could be different floors of the same building or different buildings on the same campus, or they could be offices in different cities or countries. We would consider a team whose members are based in the same office but send each other emails to avoid a trip up to another floor to be slightly virtual, although much less virtual than a team that operates across several time zones and thousands of miles. Communicating across distances and time zones makes it more difficult to share knowledge and coordinate tasks. Since members are located in different places, they may be less aware of what those in other locations do not know and neglect to share or explain this information. Sharing this contextual or “situated” knowledge—such as information about local holidays, weather, culture, politics, and sports events—is more difficult because members often take it for granted or find it difficult to explain or articulate. For example, a video conference between London and Chicago was delayed for 45 minutes because of a huge snowstorm in Chicago, but the London participants did not know why their remote collaborators were absent until they came in drenched with snow. The lack of common ground among virtual team members in different locations also makes it more difficult to build trust and mutual understanding, as remote collaborators may falsely assume that team members in other locations are simply less reliable or competent rather than attributing their behavior to situational circumstances beyond their control. For example, given they were not aware of the snowstorm in Chicago, the London-based team members likely began guessing what had caused the delay, and may have assumed the members in Chicago were simply rude, lazy, or uninterested! Those assumptions were probably not true, but without information about the local context, people often “fill in” their knowledge gaps, and this can cause misunderstandings.

In addition, there are shorter windows of time for meetings in which all members are participating together when they are spread over different time zones, and meetings may have to be held very late at night or very early in the morning for some members. Team members at remote sites may be inadvertently left out of decision-making, or those joining conference calls at inconvenient times may be less engaged, making the innovation process less efficient and productive. For example, a product development team in the agriculture industry had a core set of members at the same location, but many of its extended team members worked remotely. In addition, the managers of most of the team members were not on-site. Almost all decisions were referred for approval through a complex maze of “hierarchical supervisors” who were located far away from the core. As a result, members of this team felt they were held hostage by slow micro-management, which hindered the spontaneous innovation process. All ideas had to be run past their supervisors and this was time consuming and frustrating, given they were off-site and in different time zones. Requests for support to Europe from North America, for example, were often seen as disappearing into a “black hole.”

Electronic Dependence

*Electronic dependence* refers to team members’ reliance on technology to communicate. Virtual team members rely on an ever-growing repertoire of ICTs such as email, teleconferencing and videoconferencing, smartphones, collaborative software such as
Sharepoint, intranets, and new social media tools like wikis and social network sites (such as Yammer and IBM’s Beehive, now called Social Blue) to collaborate and share knowledge. Although these new technologies make it possible to communicate and conduct work across distances, if members don’t see each other face-to-face in physical meetings or interactions, they may miss subtle gestures, expressions, or other nonverbal cues team members display. For example, in person, a team member can glance at his manager to observe her reaction to a comment made in a meeting, or gesture toward a list of ideas written on a flip chart. These nonverbal signals, through gestures and body language, are absent in much electronic communication, making understanding and interpretation of meaning more difficult. Communicating electronically may also restrict spontaneous and unplanned communication, such as informal information sharing around the water cooler or in serendipitous hallway encounters. This may reduce the amount of improvisation and experimentation that takes place in virtual teams, since the creative synergy needed for innovation is more easily established when team members have the opportunity to meet face-to-face. For example, brainstorming, the process of sharing free-flowing thoughts or ideas immediately as they come to mind without evaluating them or analyzing them in the moment, can be difficult when members are not face-to-face. The difficulty in sparking a creative exchange of ideas using technology such as email, as compared to face-to-face, is illustrated in the following quote from a member of a team in the consulting industry:

“It is really tough working on knowledge creation over the phone and via email. A good example is this project. It is conceptual. We know there is something there, but trying to kick-start a conversation on that is really tough. The way I have done it is that Jack and I have been in the same office with a white board, to at least kick-start it. When you are introducing concepts—that is really hard to do over the phone. How do you motivate people when they aren’t in the same room? I think it is so valuable to be there in person.”

Dynamic Structure

Dynamic structure refers to how often members leave the team and new ones join it, and to how stable or changeable members’ roles are. Rather than having stable membership, many virtual teams are short-term and project-based, or involve frequent member turnover through temporary subcontracting or hiring people to do specific tasks (often called outsourced membership). This poses challenges to innovation due to a lack of a shared work history. Increased turnover among team members also makes it hard to develop strong relationships and trust among members who do not interact frequently. It is difficult to preserve the ideas, information, knowledge and ways of doing things that the team develops as members work together when members are always coming and going! Members may be reluctant to share knowledge with new team members because they are uncertain about their motives. Finally, lack of knowledge of what each member can contribute makes it harder to assign responsibilities and coordinate around novel ideas. For example, relationships weakened by member turnover and conflicts due to changes in reporting structures can be seen among product development teams at a large manufacturing organization, where there was very high turnover. Team members reported that their coworkers sometimes left just as
they were starting to understand the complex trade-offs involved in trying to meet the needs of the organization. Several teams had a large number of new hires, and training and mentoring were limited for these new members, creating tension between the experienced members (who had been with the firm a long time) and new members, and reducing innovation.

**National Diversity**

National diversity refers to the number of different nationalities represented on the team. Virtual teams may consist of members of a single nationality (e.g., a software team split between the U.S. East and West Coasts, but who all share U.S. nationality; or a global team of Germans who are working in different countries, but all share German nationality). Virtual teams often involve multiple nationalities, however, as they often span several countries. For example, Gibbs studied a global software organization headquartered in the United States with software centers in Brazil, China, England, India, Ireland, and Singapore; many of the software development teams were virtual and involved members from multiple countries. National diversity may stifle innovation if not managed properly, as it may lead to conflicts and rifts among team members due to different cultural values, mindsets, and allegiances. Team members from different countries are likely to have different communication styles, for example, Europeans and North Americans tend to be direct and open about their feelings and opinions even if they are negative, while Asians tend to be more indirect and avoid negative or confrontational responses in an attempt to save face and preserve group harmony. Team members from different countries may also have different ideas of a team and how it operates as well as different values regarding the best type of leadership, or what role work should play in one's life. Even norms around knowledge sharing are different in different cultures, which may impede innovation. This is evident in the following quote from a member of a global procurement team in the automotive industry:

*The major issue is probably cultural. In America, knowledge sharing is a lot more promoted. People are very open about sharing knowledge and work in these open cubicles... I'm from Europe, which is a little more competitive in terms of what you know. You feel like if you tell people what you know, then you are at a disadvantage. People are then a little bit more reluctant to share knowledge. They also think that if you share a lot of knowledge, then maybe your job can be taken by somebody else.*

Finally, national differences often create subgroups that fragment the team and limit information flow, making it difficult to integrate team knowledge and innovate. For example, a team of Americans, Germans, and Chinese may split out into three subgroups based on nationality whenever there is an opportunity for free-flowing conversation. This is not necessarily bad. Within the subgroups, people are likely to share the same first language, values, and norms, so sharing ideas or chatting comes naturally and feels comfortable. If the ideas generated in these subgroups are shared in the larger team, this can help the team be more innovative. But if the subgroups become competitive, suspicious or too entrenched, this can be bad for the team as a whole, as new ideas may never be brought to light and the team may find it tough to get anything done.
The Case of the Europe Connect Concept Team

Virtual teams that are highly geographically dispersed, electronically dependent, structurally dynamic, and nationally diverse may struggle to share knowledge and innovate. As an example, consider the Europe Connect Concept Team. It was highly virtual, with nine members from five different countries spread across six firms, four locations, and six subunits (e.g., Human Resources, Research and Development, Technology, Production, etc.). The team was set up among public and private organizations in the information technology sector to develop a new technology prototype for children, funded by the European Economic Commission. The team was a highly complex collaboration and in addition to being highly virtual, the project was loosely defined due to a lack of vision or clear goals. The team was splintered by differences in location, national culture, as well as functional background (researchers versus designers), which led to conflicts and poor communication that ultimately hampered team collaboration and innovation.

A critical episode occurred when the team was designing and testing a touchpad feature to be added to the prototype. The initial project work plan created a clear structure while leaving room for creativity, but each of the partners had different goals and interests regarding the project, and these differences were never discussed openly or explicitly. Early team meetings in the first year of the project were productive and resulted in cross-disciplinary learning and rapid development of numerous creative scenarios, concepts, and a model for structuring future work. Over time, however, the team became more focused on commercially oriented activities (such as developing a working prototype) and excluded other goals such as research and publishing by the academic partners. Concepts were not well developed, and decisions about which concepts to focus on were made without getting input from all of the partners. Team members became more cautious in communicating with one another, which reduced creativity. The team became further polarized into subgroups, and team members who were unable to attend all the meetings felt disenfranchised and left out of decisions made in the meetings. Some members believed that the communication in the meetings was too formal, which stilled open communication and creativity—one member said she felt like she was choking in meetings:

I think at least there should be a creative atmosphere of openness. I feel…very choked. Because it leaves no room for saying things. Maybe it’s because I wasn’t there in the beginning and we have had this first year of doing experiments and I just wasn’t there. I missed my chance. It seems like everything must be fixed, objective, practical and complete. And when I talk about something more like feeling, or "just try this," or emotions of the users, it’s like, "oh no" or "we’ve done that" or "that’s just not what we’re into now." So it’s this atmosphere where creative thoughts need to be developed. It’s missing here.

When asked about discussion in the meetings, another member said, “Yes, there was discussion. But most of the time they were not discussions in which new ideas would come up. It’s really two sides and it stays like that.” The team ended up dividing the project up into discrete chunks by country location rather than collaborating, and certain usability problems remained unsolved by the end of the project.
Overcoming Virtuality Challenges through Communication

In the previous example, many of the team's problems seemed to stem from the way members communicated. From the start, the lack of initial discussion of goals and vision made it impossible for them to integrate differing views and develop a shared understanding of how the project could meet the respective interests of the partners. Team members were used to different communication styles, and rather than openly confronting and resolving conflicts arising from such differences, conflicts were suppressed. Poor communication during meetings led to a “groupthink” mentality, in which there was a lack of open discussion, challenge, or feedback. Their communication did not produce the creative energy and debate needed to spark new ideas and innovation. Not all team members were involved in decision making, causing them to feel excluded and resentful. The information technology developed for the project, an Intranet, was quite effective in archiving project data, but it did little to create a shared workspace. Team members used e-mail to communicate with one another, but over time they became more likely to communicate “off the record.” The deterioration of the group process, combined with pressure to meet real deadlines, contributed to members focusing on just getting the task done with little collaboration and creative knowledge sharing.

A psychologically safe communication climate can help overcome the negative effects of working virtually and enable teams to be more innovative.\textsuperscript{13} We define a \textit{psychologically safe communication climate} as an environment characterized by support, trust, openness, mutual respect, and risk taking. Such a climate fosters innovation because it encourages members to speak up, engage in spontaneous and informal communication, provide unsolicited information, and bridge differences by suspending judgment, being open to different ideas and views, and performing active listening.\textsuperscript{14} When members engage in active listening, they provide their full attention to a speaker, nodding, smiling, saying “uh huh” or “yes” or other expressions to show they are listening. Then, they ask questions to clarify anything they don’t understand, or ask the speaker to provide more details about their ideas. The listener may even repeat back what they think they heard the speaker say, to check whether they indeed heard them correctly. This reassures the speaker that their message is getting across and that their ideas are respected. It is important to note that the listener does not have to always agree with the speaker! Even if they don’t, communicating that they are listening and that the ideas expressed are respected is important. If members feel that they will be heard and respected, they are more likely to share ideas, particularly if these ideas are different, unusual, or risky. Psychological safety has been found to be important for team learning and innovation, as it helps mitigate interpersonal risks and encourages members to admit mistakes, question practices, and ask for help and feedback.\textsuperscript{15}

A psychologically safe communication climate is likely to help overcome challenges associated with virtuality by:

- promoting open sharing of information and situated knowledge across geographic locales and contexts.
- increasing informal communication and feedback to overcome problems resulting from reduced face-to-face interaction and lack of social cues in electronic communication.\textsuperscript{16}
- making members feel comfortable being more spontaneous and “improvising” rather than being hesitant and restricted by protocol or past routines.
• strengthening relationships in teams with high turnover by building trust\textsuperscript{17} and reducing perceptions of risk, as well as providing incentives to build a shared history, contributing to work flow.
• providing a psychologically safe communication climate that can help bridge national differences,\textsuperscript{18} as team members who communicate supportively are more likely to develop shared understanding and integrate new knowledge to reach new solutions. In these ways, a psychologically safe communication climate can help to reduce innovation challenges due to geographic dispersion, electronic dependence, dynamic structure, and national diversity, by turning these features from challenges into assets.

Ideas in Action

Although virtual teams are often implemented by organizations to increase innovation, they often (ironically) hinder it. Part of the problem may be that managers are unsure of how to design such teams. We have seen that four characteristics associated with new "virtual" team designs (geographic dispersion, electronic dependence, dynamic structure and national diversity) may be problematic for innovation, but that these challenges can be overcome by creating a psychologically safe communication climate. Figure 1 illustrates the relationship among these characteristics. In terms of actions for managers, this suggests that in order to reduce the negative effects of virtuality, a psychologically safe communication climate can help to surface and clarify differences, resolve conflicts, and foster an open environment in which team members feel comfortable asking questions or admitting they don't understand something, and are comfortable voicing their opinions. This can increase innovation by allowing different perspectives and viewpoints to be heard, enabling the merging of ideas, and helping to find middle ground and bridge differences.

How can such a communication climate be created? Managers can engage in specific communication practices such as surfacing differences, testing for understanding, active listening, and clear communication of meaning—all of which help to overcome both national and geographical differences and increase innovation. In light of such a communication climate, potential benefits such as improved decision quality and creativity—due to the richness of ideas, viewpoints, and perspectives, and more concerted focus on understanding others’ ideas, meanings, and arguments—can be realized.\textsuperscript{19} Surfacing and clarifying contextual differences contributes to coordination, creativity, and garnering of resources for innovation across contexts. Sometimes, surfacing such contextual differences is as simple as sharing when people are normally at work (i.e., typical working hours and holidays)! This differs around the globe and can be a source of frustration and anxiety when members are uncertain where their counterparts are and why they may be absent from work.

\begin{figure}[h]
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\includegraphics[width=\textwidth]{virtuality-psychologically-safe-communication-climate-innovation.png}
\caption{Model of Virtuality, Psychologically Safe Communication Climate, and Innovation}
\end{figure}
It is also important to understand particular pressures, deadlines, or workflow issues at each site. Resources such as particular skills, tools, or technologies may be abundant in one location and scarce in another—and if it is assumed they are abundant everywhere, this can create conflict and misunderstanding.

Further, the difficulty in sparking a creative exchange of ideas over electronically mediated communication, as compared to face-to-face, can be mitigated through expert use of the technology, which helps to contribute to a psychologically safe communication climate. Establishing clear communication protocols (i.e., rules and routines) with explicit norms for team member interaction, participation, policies, and expectations for communication (how often to communicate, expected response time, which media to use, prioritization of issues, etc.) is likely to improve team performance. New social media tools such as social networking sites, blogs, and wikis may also be used in ways that provide richer cues and facilitate context awareness through the use of status updates or profiles. For example, if each member shares a personal profile, this helps the team understand who each member is at a personal level, what "makes them tick," and what experiences they have had that they can contribute to the team. This personal identity information may also help them find common ground with each other, enhancing knowledge sharing and innovation.

Finally, the disadvantages of dynamic structure for innovation, such as lack of relationship building due to member turnover, can be lessened by clear communication about team norms to ensure they are shared, by holding a team kick-off meeting and periodic social gatherings in order to socialize new members and clarify roles. This can help turn the team's fluid, flexible roles into a source of new ideas and expertise.

Conclusion

We have addressed the sometimes unintended consequences of using virtual team designs for innovation in organizations. These consequences occur because geographic dispersion, electronic dependence, dynamic structure, and national diversity can hinder innovation processes. The unique and varied ways in which each of these characteristics influence innovation can be overcome by creating a psychologically safe communication climate, in which members are able to say what they think, surface problems, feel free to be assertive about their ideas, yet at the same time are considerate of others' feelings. Doing so may be the key to maximizing technology for team-based innovation in today's global organizations.

Endnotes