

A Virtual Team Group Process

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Abstract

Virtual teams are a phenomenon of the Information Era and their existence in health care is anticipated to increase with technology enhancements such as telehealth and groupware. The mobilization and support of high performing virtual teams are important for leading knowledge-based health professionals in the 21st century. Using an adapted McGrath group development model, the four staged maturation process of a virtual team consisting of four masters students is explored in this paper. The team's development is analyzed addressing the interaction of technology with social and task dynamics. Throughout the project, leadership competencies of value to the group that emerged were demonstrated and incorporated into the development of a leadership competency assessment instrument. The demonstration of these competencies illustrated how they were valued and internalized by the group. In learning about the work of this virtual team, the reader will gain understanding of how leadership impacts virtual team performance.

Introduction

The Information Era has spawned the virtual team, a group of individuals, separated by time and space, assembled together using various telecommunications and information technologies to accomplish a specific task during a fixed timeframe (Lau, Sarker, & Sahay, 1999; Townsend, DeMarie, & Hendrickson, 1998). Recent literature contains case study reports on virtual teams in higher education

(Lau et al., 1999; Landrum & Paris, 2000). A project virtual team of this very nature assigned the task of developing a leadership competency assessment instrument in partial fulfillment of a Masters level course illustrates the role leadership takes in this virtual environment. The team's development over the course of the project is analyzed using Peterson & Stohr's (2000) adaptation of the McGrath (1991) Time, Interaction and Performance (TIP) group development model. The adapted model (Table 1) addresses the social dynamics of team member interaction and the task dynamics of production throughout four developmental stages and, in this paper, is supplemented by a paradigm that integrates technology with team (social) and task domains (Kivowitz,

Table 1
Adapted Model
Virtual Teams: A New Model of Team Development

Most of us are familiar with Tuckman's model of team development which incorporates the stages of forming, storming, norming, performing, and adjourning. Virtual teams require a new model that accounts for the complexities of their work environments. The following model, adapted from J. McGrath, addresses both task performance and social dynamics arguing that both work together to create the team experience.

Task Dynamics			Social Dynamics	
Stage	Description	Task Activities	Description	Social Activities
1	Inception	<ul style="list-style-type: none"> <input type="checkbox"/> Select goals <input type="checkbox"/> Generate preliminary Plans 	Interaction/ Inclusion	<ul style="list-style-type: none"> <input type="checkbox"/> Ensure team Member inclusion <input type="checkbox"/> Ensure opportunity for participation
2	Problem-solving	<ul style="list-style-type: none"> <input type="checkbox"/> Generate Ideas <input type="checkbox"/> Select technical problems to be resolved <input type="checkbox"/> Solve problems with correct, known answers <input type="checkbox"/> Solve ambiguous problems 	Position status/role definition	<ul style="list-style-type: none"> <input type="checkbox"/> Define initial roles <input type="checkbox"/> Address status of team members <input type="checkbox"/> Clarify and refine roles and expertise
3	Conflict resolution	<ul style="list-style-type: none"> <input type="checkbox"/> Resolve conflicts about different points of view <input type="checkbox"/> Resolve conflicts stemming from different interests 	Power/resource allocation	<ul style="list-style-type: none"> <input type="checkbox"/> Address power differences between team members <input type="checkbox"/> Address interpersonal relationships <input type="checkbox"/> Address how different solutions affect power allocation to different functions, regions, and/or countries
4	Execution	<ul style="list-style-type: none"> <input type="checkbox"/> Perform tasks <input type="checkbox"/> Address organizational barriers to performance 	Interaction/Participation	<ul style="list-style-type: none"> <input type="checkbox"/> Ensure equal participation <input type="checkbox"/> Ensure effective interactions and communication

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Table 2
Virtual Team Leadership Competencies

Knowledge
Skill
Commitment

The Virtual Team decided that the following are key competencies in each of these categories:

Knowledge	Skill	Commitment
Self Awareness	Communication	Passion and Purpose
Organizational History and Goal	Ability to Motivate Others and Self	Lifelong Learning
Systems Thinking	Relationship Building	Team Development
Knowledge Management	Creativity	Principle-centered Leadership
Risk Taking	Decision Making	Valuing Human Resources

each other's professional backgrounds, personal dynamics and educational capabilities already existed. Early interaction focused on elaborating how individual strengths and weaknesses would allow the team to collectively meet the assignment criteria. Focus was also placed on establishing the framework for inclusion and the opportunity for group participation in private group forum or synchronous group chats. Initial roles were established by dividing labor among members and setting tentative project phase deadlines. The tone set by detailed written messages reflected the eagerness and enthusiasm of the team to be task oriented.

2001). Throughout the project, leadership competencies of value to the group and group process emerge (Table 2).

Inception and Interaction/Inclusion

“To do the work, teams need the right tools and a sturdy infrastructure to host the tools” (Kivowitz, 2001). The use of existing technological infrastructure greatly facilitated the inception stage of this virtual team. Team members utilized familiar Web CT groupware, including a private group forum and chat room for asynchronous and synchronous messaging respectively. There were no physical meetings or telephone interaction between team members, hence making this team process strictly virtual. The lack of voice and visual contact forced group members to carefully communicate purpose, thoughts and emotions via the written word. Lipnack & Stamps (1999) claim the principles of purpose, people, and links underlie the success of virtual teams. Armed with technology (links) and leader-directed project criteria with deadline for completion (defined purpose), the virtual team quickly entered into the social (people) dynamics where initial interactions are crucial in establishing - or not- the element of trust. Trust is key to success and building that trust includes social interaction, clear role definition and positive attitudes (Coutu, 1998; Jarvenpaa & Leidner, 1998), which the team demonstrated from the outset. In regular group processes some element of trust is often gained through repeated person-to-person contact where members rely on facial expressions and body language. This aspect was not present with this solely virtual team leading to trust being built through other methods with reliance on leadership skills such as self awareness, communication, creativity and team development, just to name a few. With at least six weeks prior experience as virtual classmates preceding group assignment, familiarity about

Generation of preliminary ideas for the leadership assessment tool and for the group process aspect of the assignment began early. Applicable web sites were quickly posted with initial reviews of these sites being completed. Suggestions surfaced for direction of group process for the written portion of the project. An initial synchronous chat meeting time was established and an agenda was drafted to focus direction of the upcoming chat session. Progress from this point looked promising.

Problem-Solving and Position Status/Role Definition

During the initial collaboration of preliminary ideas for the assessment tool, the Team experienced confusion over the tool components and the work required. There was misconception on the direction and extent of the work by a member of the team. Other team members quickly addressed this problem by clarifying the goal and direction of the assignment to prevent any further unnecessary work. This openness illustrated inherent trust and security in addressing misunderstandings instead of allowing them to fester and undermine team performance (Kimball & Eunice, 1999).

Lau et al., (1999) state, “virtual teams rely heavily on the leader... to assist members in achieving a high degree of coordination, a shared understanding among members of the overall goals to be achieved, and an understanding of individual member's values and belief systems”. While the course instructor was considered the leader outside the group and set the initial project criteria and deadline for completion, the virtual team found the leadership role to be equally shared among the four members for the overall design and success of the project. To reach group consensus on the work content, each member articulated suggestions and provided background resources for other members to gain contextual understanding of the issue discussed. In terms of social dynamics, members of the team clarified their

areas of expertise and volunteered to do the necessary tasks. This self-managed virtual team jointly set the work schedule and asynchronous but continuous feedback by all members of the team ensured common understanding of the work.

Deciding upon technology usage at this stage enhanced the communication, collaboration and coordination of teamwork, a characteristic of a successful virtual team (Jude-York, 1998). Both asynchronous forum postings and synchronous chat room discussions were used for collaboration. The former enabled time flexibility for posting of ideas and allowed time for members to do research and gain common understanding. The latter was scheduled at least once per week, and was necessary for the group to commonly derive solutions prior to setting the next stage of the work. Synchronous discussions also enabled team members to resolve any potential issues or conflicts in a timely manner.

Conflict Resolution and Power/Resource Allocation

With trust and open communication regarding work preferences (selection and fair allocation of project activities) and values established such as sticking to deadlines and frequent open communication, the group was well equipped to resolve any conflicts stemming from different points of view or interests. The homogeneity of the team's established work values, along with a common project goal while working under a restricted timeline, facilitated cooperation, kept the group focused, and effectively prevented conflicts.

No interpersonal relationship issues surfaced to impede the group process or task completion. Team members demonstrated care and concern for each other, respected personal commitments and supported a balance between personal life, worklife, other course commitments and this project. This resulted in all members fulfilling their commitments to the group in a reasonable and agreed upon timeframe.

Members of the team were able to complete tasks as agreed without conflict. Each member brought a particular set of skills and expertise contributing to an equal power base. External resources and feedback on internal team functioning flowed freely between team members as each member accepted areas of responsibility and made suggestions on task processes. Rapid maturation towards the final stage ensued.

Execution and Interaction/Participation

Interaction and participation by all team members characterized this production stage. Team members used their various talents (research, writing, editing, technology use) to self-select tasks, work in areas of interest to them, and contribute to rewarding outcomes for shared learning. A balance of behavioural styles facilitated task accomplishment and good communication. Objectives of the project were collaboratively determined and staged timelines established. Through series of written interaction by all members in the

form of project outlines, the overall goal of the project was clearly identified to be the development of a generic questionnaire for leaders or potential leaders to self-identify their strengths and weaknesses.

As the group's thinking became even more cohesive and focused on the final outcome, the group process shifted further from a directive approach to a participatory one. Each virtual team member was autonomous and self-reliant during completion of their self-selected tasks yet interdependent in meshing all the parts towards the whole. Leadership was shared at specific points in the process depending on the task or social dynamics at hand. This was indicative of the new way to work in the Information Age (Lipnack & Stamps, 1999).

Technology is fundamental to this new way to work. Technological barriers such as server downtime were fortunately minimal and software between all members was compatible, which enabled members to continually build upon each other's work without reinventing new materials each time. The team posted frequent updates of conference notes and participated in virtual chat at prearranged times to review project progress and to provide feedback. Clarity of the task and group process evolved as members completed and shared their work. Members took initiative in providing guidance to one another to meet team objectives. The dialogue among team members generated understanding, negotiation and agreement on the meaning of the competencies. Consensus was reached when the statements accurately reflected group values such as integrity, risk-taking, and self-awareness. Upon completion of the tasks, the group reflected on the learning experience, which brought the project to closure.

Conclusion

The experience of this virtual team exemplifies how leadership competencies can be used effectively in a virtual environment. These competencies must be even more honed in such an environment where individuals must work towards a common goal although they have never met face to face nor spoke as a group. Trust, established quickly from the outset, catalyzed team cohesion, facilitated open communication, enabled prompt problem solving and averted the need for conflict resolution. The team moved quickly through the developmental stages focused on accomplishing a common task. Through the process, the team utilized technology to optimize member versatility for shared leadership, mutual learning and synergistic outcome. This experiential learning is transferable to the practice setting where technologies, such as telehealth and groupware, are transforming the way health care is delivered. People who can mobilize and support high performing virtual teams are well positioned to lead knowledge-based health professionals in the 21st century.

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Endnote

While the leadership competency assessment instrument developed by the team is not presented here, it is a valuable tool for leadership self-reflection and feedback and can be obtained through the following contact:

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