A Guideline for Virtual Team Managers: the Key to Effective Social Interaction and Communication

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Abstract: Globalisation has had an enormous impact on the manner in which teams operate. Traditional teams have been forced to adapt to their constantly changing environment in order to compete effectively with other business.

A vast number of IT professionals work in teams, which are characterised by distribution and diversity. It is the presence of virtual characteristics that may result in numerous social problems which can negatively impact team communication and productivity, demanding more effective team management. There is much potential for conflict in virtual teams as members work across cultural, geographical and time-bound environments. This conflict leads to ineffective communication and as soon as team members stop communicating effectively, barriers begin to form between them, which, leads to a decrease in productivity and interaction. Conflict resolution, and the extent to which it undermines performance, depends heavily on the conflict resolution approach.

This qualitative research is conducted by means of a literature review only, in which several managerial models available to virtual team managers are critically analysed and combined into a proposed theoretical model of general managerial guidelines for virtual team managers. Both current and proposed models discussed within this paper should be viewed within the limitations of this research i.e., the proposed model remains untested and should be viewed as a hypothesis for future research.

This research distinguishes virtual teams from traditional teams by defining characteristics that are common to virtual teams. These characteristics are: physical dispersion, crossing time boundaries, dependence on communication technologies, crossing functional boundaries, diversity, unstable team structure, non-routine as well as interrelated tasks. The research argues that teams are neither entirely traditional (local) nor entirely Global but may be placed on a continuum of virtuality according to the virtual characteristics the team possesses.

The theoretical model proposed by this research: Proposed Managerial Strategies, is intended to help IT managers overcome conflict and consequent social problems within virtual teams, which may otherwise lead to ineffective communication. The model provides managers with guidelines and strategies which may be implemented to enable effective social interaction and prevent future problems.

Keywords: virtual teams, globalisation, communication, distributed teams

1. Introduction

Social interaction forms a vital part of any team experience. Virtual teams are teams whose members are geographically distributed, requiring them to work together through electronic means with minimal, or in extreme circumstances, no face-to-face interaction (Malhotra, Majchrzak and Rosen, 2007: 60). Geographical dispersion, organisational differences and cultural diversity, which are traits of virtual teams, magnify problems relating to these teams' social interactions, by preventing development of understanding and relationships (Kankanhalli, Tan and Wei, 2007: 238). A combination of virtual characteristics compounds coordination problems by creating bottlenecks from distance, and communication problems arising from cultural differences and weak ties (Wong and Burton, 2001: 346). According to Kimball (1997: 1) managing a virtual team means managing the whole spectrum of communication strategies and project management techniques, as well as human and social processes in ways that support the team. Therefore it is essential that managers monitor these social issues carefully and at times, change their managerial style to suit their teams' distributed environment. Managerial models and strategies, available to managers, help them overcome these social problems and provide guidelines regarding the adoption of a distributed managerial style.

A critical review of literature, sourced mainly from academic journals, is synthesised into a current model. A new, proposed theoretical model is suggested as a means for addressing the concerns raised in the current model.

2. Characteristics common to virtual teams

Virtual teams have unique characteristics that make it possible to differentiate them from both traditional teams and from one another (Bell and Kozlowski, 2002: 12). In order to define the characteristics common to virtual teams, it is important to understand what distinguishes virtual teams from conventional, face-to-face teams. This is illustrated in Table 1 below.

Table 1: Traditional versus Virtual Characteristics (Kimball, 1997: 1)

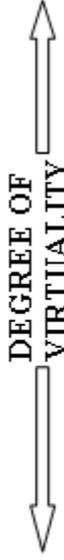| Traditional Characteristics	Virtual Characteristics
Fixed team membership	Shifting team membership
Members are drawn from within the organisation	Members can include people from outside the organisation
Members are only part of one team	Members are part of multiple teams
Members are co-located organisationally and geographically	Members are distributed organisationally and geographically
Teams have a fixed starting and ending point	Teams form and reform continuously
Teams are managed by a single person	Teams have multiple reporting relationships with different people at different times

The following characteristics were found to be common to virtual teams; these illustrate how the nature of teams has changed from traditional to virtual, in response to organisational demands:

- Team members are physically dispersed
- Time boundaries are crossed
- Communication technology is used
- Members have a common purpose
- Diversity is present
    - Cultural diversity (in the form of national or linguistic diversity)
    - Organisational diversity (hierarchical versus flat or egalitarian culture)
    - Age diversity
    - Gender diversity
    - Functional diversity (differences in education and experience)
- Structural dynamism is present
    - Functional boundaries are crossed
    - Shifting team membership
    - Teams form and reform continuously (lifespan is temporary)
    - Teams report to different people at different times
    - Members are part of multiple teams
    - Members bring different perspectives and skills
- Teams perform non-routine tasks
- Teams perform interrelated tasks

Virtual teams may be categorized into different types of virtual teams according to the characteristics that a particular team has. Teams, which possess more virtual characteristics, are placed higher on the continuum of virtuality than teams with fewer virtual characteristics. This continuum is illustrated in Table 2.

According to McKinney and Whiteside (2006: 84), distributed teams face all the traditional challenges that any other team faces, and in addition to this, still have to deal with new communication challenges. In general, virtual teams that are higher on the continuum of virtuality, possess a greater number of virtual characteristics, and will therefore be more sensitive to the social problems caused by these traits, than more traditional teams.

Table 2: Types of Virtual Teams and Degree of Virtuality. (Adapted from Kimall (1997: 3) and Bal and Teo (2000: 347))

	Team Type	Virtual Characteristics
HIGH ↑ **DEGREE OF VIRTUALITY** ↕ **LOW**	Action	These teams offer immediate responses. Distance and organisational boundaries are usually crossed.
	Management	Are separated by distance and time. National boundaries are often crossed but organisational boundaries are usually intact.
	Service	Are now distributed across time and distance. Teams rotate so that there is always one team operating.
	Work	Perform regular and ongoing work. Membership is clearly defined. Teams are now beginning to cross time and distance boundaries.
	Project Development	Projects are conducted for customers for a period of time. Time, distance and organisational boundaries are often crossed. Tasks are usually non-routine. Exist longer than parallel teams, but membership is inconsistent.
	Parallel	Carry out special tasks that regular organisations are not equipped to perform. Time, distance and organisational boundaries are often crossed. It has distinct membership and members usually work on a short-term basis to address specific issues.
	Networked	Consist of members who collaborate to achieve a common goal. Time, distance and organisational boundaries are often crossed. Members rotate on and off the team as their expertise is needed.
	Community of Practice	Support people who are working on common tasks. Membership is voluntary and teams are focused on learning as opposed to specific deliverables.
	Executive	Consist of managers who are on the team due to their position in the organisation. These teams are usually semi-permanent and are responsible for specific functions in the organisation.

3. The social problems affecting virtual teams

Since virtual teams possess different characteristics, they will be affected by different social problems as well. In general, virtual teams that are higher on the continuum of virtuality, possess a greater number of virtual characteristics, and they will therefore be more sensitive to the social problems caused by these traits, than more traditional teams.

Kankanhalli, Tan and Wei (2007: 238) state that there is much potential for conflict in virtual teams as members work across cultural, geographical and time-bound environments. This conflict leads to ineffective communication and as soon as team members stop communicating effectively, barriers begin to form between them leading to a decrease in productivity and interaction. The following section describes factors that have a direct impact on the teams' social functioning:

3.1 Physical dispersion and time boundaries

Gibson and Gibbs (2006: 457) state that in highly geographically dispersed teams, it is more difficult to coordinate members, given that there are shorter windows of time for synchronous meetings, and many meetings take place outside of standard working time. Therefore, physical dispersion increases coordination requirements, which delays communication and productivity. They also believe that physically dispersed teams are more familiar with their own external context (environment) and have less shared contextual knowledge. This also creates complexity for team members, as they are unaware of issues present in another team member's environment. Kankanhalli, Tan and Wei (2007: 238) concur with Gibson and Gibbs (2006: 457) and believe that physical dispersion and time zone differences cause communication delays and can often lead to conflict, resulting in ineffective teamwork. Communication delays also result in misunderstandings and may even be responsible for poor relationships between members.

3.2 Communication technology

Reliance on computer-mediated communication reduces opportunities for monitoring team members, and makes it more difficult to interpret knowledge, as the context is not known (Gibson and Gibbs, 2006: 458). These authors explain that communication through technology reduces non-verbal cues about interpersonal affections such as tone, warmth, and attentiveness, which in turn contribute to message clarity and interpretation of feedback. Kankanhalli, Tan and Wei (2007: 262) believe the use of electronic media tends to

delay feedback. These delays may result in misunderstandings; causing negative feelings between members if they interpret the lack of response personally (members may feel they are being ignored). Wong and Burton (2001: 342) agree with Gibson and Gibbs (2006) arguing that electronically mediated communication in virtual teams may hinder understanding and complicate knowledge transfer, especially when the information is ambiguous.

3.3 Diversity

3.3.1 Cultural diversity

This characteristic is often the cause of major social problems experienced by virtual teams. Cultural diversity consists of both national and linguistic diversity. Gibson and Gibbs (2006: 460) define culture as characteristic ways of thinking, feeling, and behaving, shared among members of an identifiable group. They believe that national diversity creates different expectations for communication practices and reduces identification with the team as a whole. This may be responsible for many misunderstandings, stereotyping, and the inability to reach agreement or make decisions. Brett, Behfar and Kern (2006: 86) believe that cultural diversity is responsible for the following categories of challenges: direct versus indirect communication, trouble with accents and fluency, and conflicting norms for decision- making. Communication in western cultures is typically direct and explicit (Brett, Behfar and Kern, 2006: 86). The meaning is obvious and does not require interpretation; which is probably why westerners often have trouble understanding the subtleties used by non-westerners. Misunderstandings and frustration often occur due to accents or lack of fluency. Brett, Behfar and Kern (2006: 87), believe that this may influence members' perceptions of status and competence. Cultures differ enormously when it comes to decision-making - this often results in frustration. Kankanhalli, Tan and Wei (2007: 260) state that cultural diversity may provoke hostility between members, as mutual dislike, personality clashes, and annoyance becomes obvious. Other problems caused by cultural diversity are: ethnocentrism (belief that one's own nationality is superior); prejudice (critical perceptions of people from other nationalities); and stereotyping (generalisation of characteristics of people from other nationalities) (Kankanhalli, Tan and Wei, 2007: 260). All these social problems impede communication between virtual team members.

3.3.2 Organisational, age, gender and functional diversity

Members who belong to different organisations have differing attitudes towards hierarchy and authority (Brett, Behfar and Kern, 2006: 87). Members from organisations with hierarchical cultures usually feel that decisions need to be approved by managers on a higher level; while members who belong to organisations with flatter structures (egalitarian culture) are satisfied making decisions on their own. These differing attitudes often result in disagreements. Kankanhalli, Tan and Wei (2007: 241) state that functional diversity arises from differences in educational background, experience, and expertise among team members. Feelings of superiority or inferiority may arise due to the differences in members' backgrounds and may lead to communication problems. Kankanhalli, Tan and Wei (2007) believe that people like to be associated with others in the same social category; therefore, gender and age diversity can potentially create weaknesses and result in conflict.

3.4 Structural dynamism, non-routine tasks and interrelated tasks

Gibson and Gibbs (2006: 458) state that teams with a short history together tend to lack effective patterns of information sharing and working together, limiting the amount and variety of information that can be communicated to team members. A highly dynamic team structure increases uncertainty and perceived risk; this uncertainty results in hesitancy to share information, as the members do not fully trust each other (Gibson and Gibbs, 2006: 459). Bell and Kozlowski (2002: 30) believe that the lifecycles of virtual teams are largely determined by the nature of the tasks these teams perform. As tasks become more complex, integration among members becomes critical; therefore it becomes more difficult to introduce new team members and even more detrimental when existing members leave. Virtual team members may be required to perform numerous tasks and hold various roles; therefore they need to be able to adapt to a variety of virtual team situations (Bell and Kozlowski, 2002: 31). This may result in role conflict and ambiguity. Conflicts between multiple role expectations and individuals' abilities to satisfy such expectations cause role overload and negative work attitudes (Bell and Kozlowski, 2006: 40). Problems arise, as tasks become complex and require more coordination between members. Teamwork, communication and feedback become more important when members' roles are interrelated and coordination is required (Bell and Kozlowski, 2006: 31).

These social issues impact negatively on team communication and create barriers to effective teamwork by reducing information sharing and creating interpersonal conflict (Gibson and Gibbs, 2006: 459). Conflict needs to be managed effectively to ensure that virtual teams perform well and achieve their set outcomes. In order to overcome conflict and improve communication between team members, managers should make use of existing managerial strategies to help them adjust to their teams distributed environment.

4. The current managerial models for virtual teams

At times the distributed nature of virtual teams may require that managers change their managerial style to suit their teams' environment. According to Kimball (1997: 3) there are some critical aspects of a virtual team manager's mindset that must shift in order to be effective in contemporary organisations. Various managerial models will be discussed; these are divided up into two groups: general guidelines and specific strategies.

4.1 General guidelines

The following section describes general guidelines that offer assistance to managers of virtual teams:

According to Gibson and Gibbs (2006: 461) a psychologically safe communication climate may act as a moderating variable that helps to overcome the negative effects of virtual characteristics. They state that this environment should: provide opportunities for participation and open communication; encourage members to speak up, raise different opinions, and engage in informal communication; encourage members to remain open to other ideas and perspectives thereby avoiding early judgement of others; and encourage active listening.

Kimball (1997: 3) believes that managing virtual teams is not unlike managing traditional teams; managers should focus on developing norms surrounding the following: the purpose of the team; roles of members; team culture; conversation; feedback; pace of work of each member; entry and re-entry of members into the team; summarising different responses of members' opinions (weaving); participation of members; and flow of information. Kimball (1997: 7) is in agreement with Gibson and Gibbs (2006) and states that virtual team managers can help their teams by: recognising their importance; encouraging members to explore questions about how they are working together; supporting the creation of some kind of shared space (infrastructure); facilitating the coordination of technology, work processes, and the formal organisation of the team; recognising reflection as legitimate work; and supporting activities which make the informal network visible. Table 3 illustrates how virtual team managers' mindsets need to shift in order for them to be effective leaders of virtual teams (Kimball, 1997: 3):

Table 3: A New Management Mindset (Kimball, 1997: 3)

Old Mindset	New Mindset
Face-to-face is the best environment for interaction.	Different kinds of environments can support high quality interaction. What matters is how they are used.
Collaboration is what happens when teams interact at a fixed time and space.	Collaboration happens in an ongoing manner, and has no boundaries.
Being people-oriented is incompatible with using technology.	Using technology in a people-oriented way is possible and desirable.
When the communication process breaks down, blame the technology.	When the communication process breaks down, evaluate management and interactive strategies, not just technology tools.
Learning to manage virtual teams is about learning how to use the technology.	Learning to manage virtual teams is about understanding more about teams and the collaboration process.

Joinson (2002: 70) believes that managers should consider the techniques used to manage traditional, co-located teams. These actions should then be broken down and formalised so that they can be applied to virtual teams; issues such as how quickly an email should be answered, and who has authority to make decisions, should be addressed.

McKinney and Whiteside (2006: 83) have derived three main guidelines for maintaining distributed relationships. They encourage managers to: mix and vary communication media; build on prior relationships; and overcome the complexity of distributed tasks through technology that increases overall interaction, collaboration, and communication. Kankanhalli, Tan and Wei (2007: 240) describe three approaches to conflict resolution: integrative, solving the problem through collaboration; distributive, solving the problem

through assertion; and avoidance, ignoring the problem. Wong and Burton (2001: 356) propose that performance of virtual teams can be improved by increasing ease of communication, introducing routines to facilitate coordination, clarifying role expectations, and fostering a common team culture. Bell and Kozlowski (2002: 46) propose that virtual team leaders need to create infrastructures that facilitate information sharing, work planning, feedback, information processing, and decision-making and this allows members of the team to become self-managing.

In general, the authors are in agreement that a general set of guidelines is necessary when managing virtual teams, although some have differing opinions as to what those guidelines should be.

5. General managerial guidelines

This section examines the findings of previous sections and includes them all in a current managerial model. Table 5.1 illustrates the communication problems caused by each virtual characteristic, as identified by the literature review.

As discussed, virtual teams face all the challenges that any other team faces and they still have to deal with these additional communication challenges (McKinney and Whiteside, 2006: 84). From Table 4, it is obvious that the virtual characteristics responsible for the most social problems experienced by members, is the presence of diversity and structural dynamism. Diversity may result in particularly sensitive issues and is therefore very difficult to manage effectively.

It is interesting to observe that the characteristic, members have a common purpose, does not result in any communication problems; this characteristic is the only one common to both traditional and virtual teams. Since traditional teams do not have to contend with the communication problems caused by the other virtual characteristics, a lack of common team purpose would not cause a complete breakdown in traditional teams' communication practices - confusion could be resolved through informal interaction. However, virtual teams rely on this characteristic (common purpose) to ensure that team members have similar objectives and can overcome the problems caused by the other virtual characteristics by implementing solutions in line with these objectives. Therefore a lack of common purpose in virtual teams would have a far greater negative impact on team communication than a lack of common purpose in tradition teams.

The characteristics, teams perform non-routine and interrelated tasks, are responsible for very few communication problems in traditional teams. These characteristics do however become issues when members are physically dispersed, time boundaries are crossed and communication technology is used.

The general guidelines illustrated in Figure 1 provide a broad solution to the communication problems discussed in Table 4. However, it is agreed by the authors that these guidelines are still useful when attempting to overcome the communication problems affecting virtual teams as they reduce friction between members and promote effective virtual team performance.

Table 4: The communication problems caused by each virtual characteristic

Communication Problems	Characteristics of Virtual Teams							
	Team members are physically dispersed	Time boundaries are crossed	Communication technology is used	Members have a common purpose	Diversity is present	Structural dynamism is present	Teams perform non-routine tasks	Teams perform interrelated tasks
Trouble with accents and fluency (Brett, Behfar, and Kern, 2006: 86)					X			
Ethnocentrism (Kankanhalli, Tan and Wei, 2007: 260)					X			
Differences in educational background, experience and expertise (Kankanhalli, Tan and Wei, 2007: 241)					X			
Decreased team involvement (Brett, Behfar, and Kern, 2006: 86)	X		X			X		
Poor relationships between members (Gibson and Gibbs, 2006: 459)	X	X	X		X	X		
Poor message clarity (Kankanhalli, Tan and Wei, 2007: 242)	X	X	X		X	X		X
Delayed feedback (Kankanhalli, Tan and Wei, 2007: 262)	X	X	X			X		
Decreased productivity (Bell and Kozlowski, 2006: 32)	X	X	X			X		
Ineffective teamwork (Kankanhalli, Tan and Wei, 2007: 262)	X	X	X		X	X		
Poor interpretation of feedback (Gibson and Gibbs, 2006: 458)	X		X		X	X		
Negative work attitudes (Bell and Kozlowski, 2006: 32)	X	X			X	X		
Less shared contextual knowledge (Gibson and Gibbs, 2006: 457)	X	X	X		X	X		
Reduced identification with the team as a whole (Kankanhalli, Tan and Wei, 2007: 241)	X	X	X		X	X		
Lack of non-verbal cues (Gibson and Gibbs, 2006: 458)	X	X	X					
Stereotyping (Kankanhalli, Tan and Wei, 2007: 260)					X			
Few opportunities for monitoring team members (Wong and Burton, 2001: 342)	X	X	X			X		
Decreased job satisfaction (Bell and Kozlowski, 2006: 32)	X		X					
Complicated knowledge transfer (Wong and Burton, 2001: 342)	X	X	X		X	X	X	
Conflict between team members (Kankanhalli, Tan and Wei, 2007: 241)					X	X		
Different levels of mutual knowledge (Kankanhalli, Tan and Wei, 2007: 242)	X	X	X		X	X		
Lack of effective working patterns and information sharing (Gibson and Gibbs, 2006: 458)	X	X	X		X	X	X	
Role overload (Bell and Kozlowski, 2006: 31)						X		X

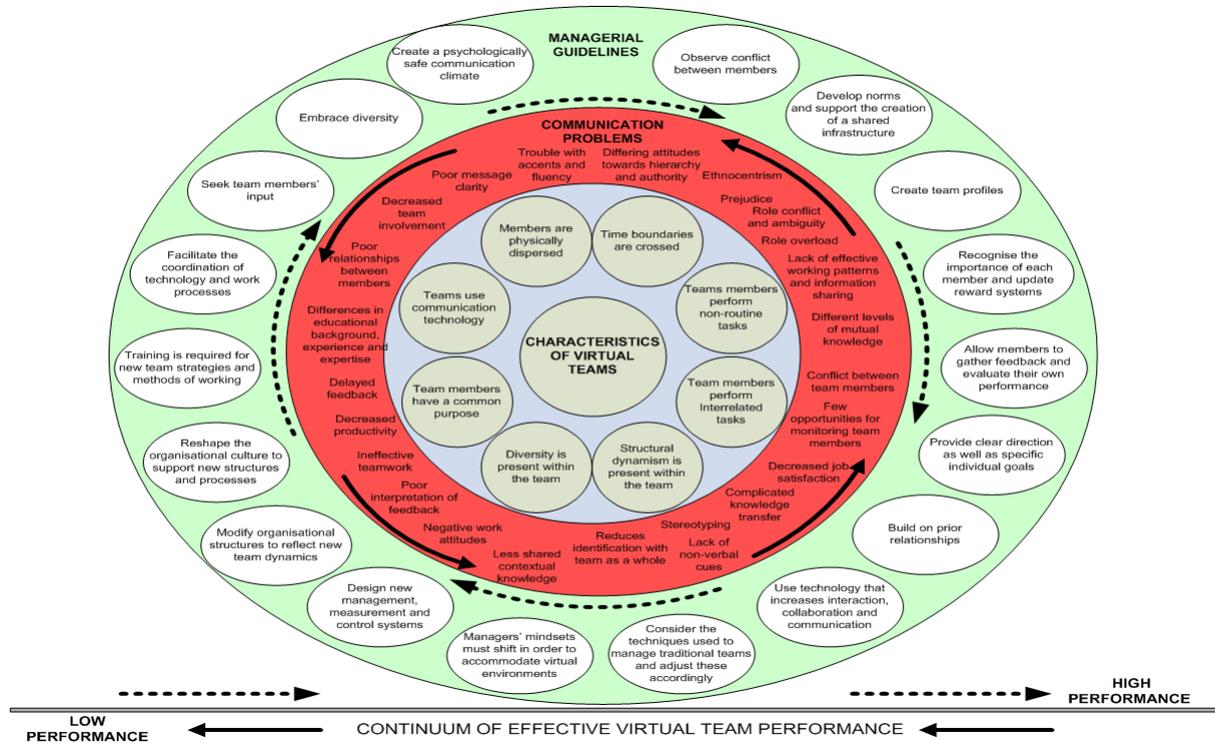|								
Role conflict and ambiguity (Bell and Kozlowski, 2006: 31)						X		X
Prejudice (Kankanhalli, Tan and Wei, 2007: 260)					X			
Differing attitudes towards hierarchy and authority (Brett, Behfar and Kern, 2006: 87)					X			

Figure 1: General managerial guidelines as a current model

6. Proposed strategies

A new dimension is added in this section; proposed strategies detailed below build on the managerial guidelines (previously discussed) and are intended to focus on a *particular* virtual characteristic and counteract the communication problems caused as a result of this characteristic.

The following section details how issues resulting from a specific virtual characteristic may be overcome by implementing the suggested steps. Note that each letter refers to a proposed strategy intended to overcome the problems caused by that virtual characteristic. Please refer to the diagram (Figure 6.1) for a clear illustration.

According to Joinson (2002: 69), virtual teams may counteract physical dispersion (**A**) by: planning and managing tasks, conducting virtual meetings and collaborating with each other. In order for these teams to use technology effectively (**B**) they need to understand the technology infrastructure, use appropriate tools and agree on standard technology to use for team work (Joinson, 2002: 69).

It is essential that team members have a common purpose (**C**); this may be done by creating a team charter and using visual forms of communication, which make common goals obvious to all team members (Joinson, 2002: 73).

In the previous section it was concluded that this characteristic (common purpose) of virtual teams is common to both virtual and traditional teams and did not result in communication problems. Therefore the strategy provided above should be used to ensure that this characteristic is present and clear to all members, and not to provide a solution to communication problems. Without this characteristic, members would not have shared objectives, and virtual interaction would be confusing and frustrating for team members.

Diversity issues are one of the most difficult problems for managers to overcome. In order to manage diversity within a team (**D**), managers need to: select members carefully (Kankanhalli, Tan and Wei, 2007: 268); identify fault lines (Kankanhalli, Tan and Wei, 2007: 268); adapt by acknowledging cultural gaps openly and working around them (Brett, Behfar and Kern, 2006: 88); using structural intervention, changing the shape of the team (Brett, Behfar and Kern, 2006: 88); using managerial intervention, setting norms (Brett, Behfar and Kern, 2006: 88); and as a last resort, exiting, removing a team member from the team (Brett, Behfar and Kern, 2006: 88).

Structural dynamism within the team may be controlled (**E**) by: setting up firm rules for communication to avoid loss of knowledge (Joinson, 2002: 73); encouraging mentoring relationships between members, as this allows members to adapt quickly and feel part of the team (Sadri and Tran, 2002: 232); and by encouraging knowledge transfer by having regular meetings.

Joinson (2002: 73) suggests that team leaders manage the performance of interrelated tasks (**F**) by: establishing regular times for group interaction; offering assistance on a regular basis; and encouraging informal, off-line conversation between members to ensure that they are comfortable working together. In order to manage the performance of non-routine tasks (**G**), Joinson (2002: 73) encourages effective communication in work groups and suggests that managers provide a virtual meeting room via intranet, website or bulletin board.

Finally, managers may avoid crossing time boundaries (**H**) by: setting up firm rules for communication; using email as a communication technology; and making themselves available to employees (Joinson, 2002: 73).

In order to mitigate conflict and improve teams' social interactions, managers should make use of the proposed strategies to overcome problems relating to a particular virtual characteristic. The managerial guidelines and these proposed strategies should be used in conjunction to maintain effective social interaction and prevent future communication problems.
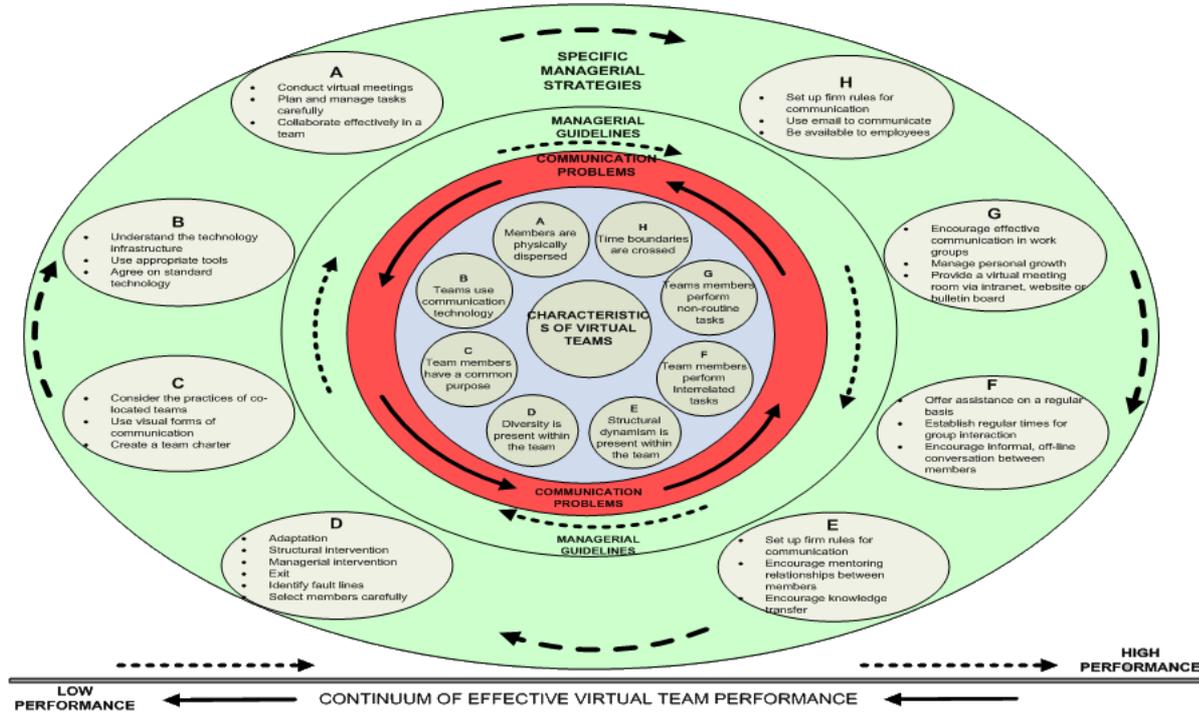

Figure 2: Proposed strategies as a New Managerial Model

7. Conclusion

Existing literature suggests that virtual teams may be placed accordingly along a continuum of virtuality, depending on the virtual characteristics they posses. Characteristics common to virtual teams are: physical dispersion, crossing time boundaries, dependence on communication technologies, crossing functional boundaries, diversity, unstable team structure, non-routine tasks and interrelated tasks. The presence of virtual characteristics results in numerous social problems which impact negatively on team communication

and productivity. In order to overcome conflict and improve communication between team members, managers should make use of existing managerial guidelines to help them adjust to their teams distributed environment. These general managerial guidelines are prescribed in order to overcome common communication issues.

Proposed managerial strategies, considered the contribution of the research, are intended to target particular virtual characteristics, and the problems associated with them.

8. Future work

There is a need for future research to assess the effectiveness of the proposed model put forward by this research as well as the extent to which this new model compliments the existing managerial models currently available to managers. Another important issue to consider is the type of technology currently used by virtual teams, and whether a chosen technology is the most effective technology for counteracting a team's communication problems.

References

Bal, J. and Teo, P.K. (2000) "Implementing virtual teamworking", *Logistics Information Management*, Vol 13, No. 6, pp 346 – 352.

Bell, B.S. and Koslowski, S.W.J. (2002) "A Typology of Virtual Teams: Implications for Effective Leadership", *Group & Organisation Management,* Vol 27, No. 1, pp 14 – 49.

Brett, J., Behfar, K. and Kern, C. (2006) "Managing Multicultural Teams", *Harvard Business Review,* Nov 2006. Available online: EBSCO Host, Rhodes University.

Gibson, C.B. and Gibbs, J.L. (2006) "Unpacking the Concept of Virtuality: The Effects of Geographic Dispersion, Electronic Dependence, Dynamic Structure, and National Diversity on Team Innovation", *Administrative Science Quarterly,* Vol 51, No. 3, pp 451 – 495.

Joinson, C. (2002) "Managing virtual teams: Keeping members on the same page without being in the same place poses challenges for managers – Workplace Trends", *HR Magazine,* Vol 47, No. 6, pp 68 – 72.

Kankanhalli, A., Tan, B.C.Y. and Wei, K. (2007) "Conflict and Performance in Global Virtual Teams", *Journal of Management Information Systems,* Vol 23, No. 3, pp 237 – 274.

Kimball, L. (1997) "Managing Virtual Teams", Speech for Team Strategies Conference sponsored by Federated Press, Toronto: Group Jazz, [online], http://www.groupjazz.com/pdf/vteams-toronto.pdf.

Malhotra, A., Majchrzak, A. and Rosen, B. (2007) "Leading Virtual Teams", *Academy of Management, E*BSCO Host, Rhodes University.

McKinney, V.R. and Whiteside, M.M. (2006) "Maintaining Distributed Relationships", *Communication of the ACM*, Vol 49, No. 3, pp 83 - 86.

Sadri, G. and Tran, H. (2002) "Managing your diverse workforce through improved communication", *Journal of Management Development,* Vol 21, No. 3, pp 227 – 237.

Wong, S. and Burton, R.M. (2001) "Virtual Teams: What are their Characteristics, and Impact on Team Performance?", *Computational and Mathematical Organisation Theory,* Vol 6, No.4, pp 339 – 360.