

## Influence of Team Familiarity on Team Performance in Distributed Teams

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**ABSTRACT:** This paper reports the importance of familiarity within the distributed team and how it affects the performance of a distributed team. Various factors which influence the familiarity are presented. Pros and cons and the impact of these factors are discussed and reported in this paper.

**Keywords:** Team Familiarity, Global Software Engineering, Distributed team, Team Performance, Task Familiarity, Task complexity

### I. INTRODUCTION

Now days, in organizations around the globe, employees who tend to work in distributed teams are increasing [7] [8] [9]. Employees who work in these teams work through tasks which are independent of each other but with a common goal, spread across distributed locations and roles communicating virtually through different types of media [8][9][10][11]. These teams totally rely on sharing knowledge between the members present in the team. This Knowledge sharing may include various activities which rely on the familiarity between the team members.

In various fields varying from science to software production, the development organizations focus mainly on finding ways to improve those factors which play an important role in organizations success [1][2]. A lot of attention is being focused on these factors which improve the overall productivity of the organization which in turn leads to success [3][4][5][6]. One such important factor that increases the organization success rate and productivity is the persisting familiarity between the team members. The following sections elucidate how team familiarity influences the overall performance of a team in a distributed setting and contributed to the success of an organization.

### II. TEAM FAMILIARITY

Team familiarity or the familiarity between team members working in an organization can also be stated as the degree to which two members of a team identify themselves to be familiar based on the experience with work they had in the past [5]. Familiarity between team members helps the team members to work on independent tasks as well as efficiently communicate and co-ordinate. It can also be defined as the information or knowledge that the members present in a team consists or have an idea on the independent or unique tasks and activities in their area of work [12]. It is the collaboration, coordination and communication between the members of a team [13]. Team members who work together for a long time can actually have more familiarity within themselves and the tasks [14].

They share knowledge through which they can effectively interact with each other [15]. Team familiarity does not let alone contributes to the performance of a team, there are factors such as task complexity and task familiarity which influence team familiarity [16], which in return indirectly influences the team's overall performance and the co-ordination complexity involved in a team. Figure 1 explain the factors which influence the team familiarity and what factors get influenced by team familiarity in a distributed team. Lets us now consider looking at how task complexity and task familiarity affect team familiarity.

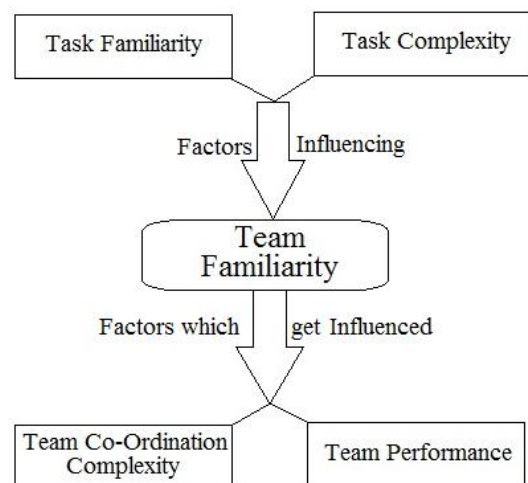


Fig.1 Factors influencing team familiarity and those which get influenced by it.

### III. INFLUENCE OF TASK COMPLEXITY AND TASK FAMILIARITY ON TEAM FAMILIARITY

A study conducted by Goodman et.al [18] suggests that task familiarity influences the overall performance as, in distributed team environment each and every task needs unique requirements, configurations and activities from the team members. Knowledge which can be shared on these can improve the communication and coordination between the tasks and hence can improve the productivity. A study conducted by Argote et.al [19] reports that team members having some familiarity with the task can have a great effect on the performance when some characteristics of the task make it difficult for the members of the team to understand. Whereas, a study conducted by Goodman et.al [20] suggests that familiarity with the task is more effective for the simple or not so complex tasks. Familiarity is important in familiarity of the team members when there is a larger task as there would be a lot of changes to be handled, team members with prior experience and familiarity with the task can help in exactly locating where

the changes need to be made. The familiarity of the team members actually helps in negotiating with the complexity of the tasks making it easier to work in distributed teams with more team familiarity.

Empirical evidence suggests that familiarity with the task within the team members improves the performance of the team. A study Goodman et.al [18] conducted on distributed teams suggests that performance increased with the experience and familiarity of the task and has decreased the complexity of the task, i.e with the tasks being more complex in nature, though there exists familiarity in the teams and tasks the total output of performance in distributed task decrease with the increase in the complexity of the task. Simon's study [17] suggests that individuals who work on independent task may find it difficult to find solutions to problems than those who work together. Also a previous experience on how to solve the complex problem might help the fellow individuals to solve the problem while working in a distributed team. Through these observations, one can incur that team members who are familiar in dealing with task complexity might help in improving the performance of the distributed team.

#### IV. INFLUENCE ON TEAM CO-ORDINATION COMPLEXITY AND TEAM PERFORMANCE

Teams which have prior shared working experience or familiarity between the team members can start tasks with good expectations from the team members and can actually help in effectively communicating and can improve the team performance [21]. A better understanding of how their work contributes and how to obtain help from the fellow team members can help in improving the performance of the distributed team [21]. When the members of a team are familiar with the fellow team members, coordinating and understanding their roles and complement each other while working out on tasks helps in improving the performance of the team [21]. A study conducted by Harisson et.al [22] suggests that familiarity between team members helps in reducing the uncertainty and improves the team coordination; it actually helps in reducing the team coordination complexity and increase the trust between the team members. According to a study made by Campbell et.al [23] suggests that team familiarity will reduce the subjective complexity while coordinating with each other as they can think about ways as how to increase chances of effectively working, increasing the productivity.

#### V. ADVANTAGES AND DISADVANTAGES OF TEAM FAMILIARITY

##### Advantages:

- Team familiarity will help in reducing the extra efforts needed for improving coordination. Hence will save time, resources and money. Thus it always helps in improving the abilities to improve the communication and coordination between team members.
- It helps in increasing the trust between the team members which always help in improving the overall performance in distributed teams.
- Familiarity within the team members helps in reducing the need for frequent communication.

- It helps in providing collective knowledge about a task and helps in sharing knowledge between team members [22].
- It helps the team members to effectively channelize their work and distribute their work. It helps in making accurate and efficient work routines.

##### Disadvantages:

- To have familiarity between team member's organizations often arrange meetings parties and trips, which actually increases the overhead costs and making it more costly.
- If more and more time is spent in focusing on the familiarity between the team members, it affects the budgets and schedules.

#### VI. ANALYSIS & DISCUSSION

After having read and analyzing the reports of studies and articles published in the area of familiarity and how does it improve team performance, we can state that familiarity between the teams actually helps in improving the team's performance in a distributed setting. The familiarity of team members also depends on the familiarity with the task which in turn depends on how complex the task is, familiarity also depends on the coordination complexities which exist in a distributed team and how they can improve the performance. Though there is plenty of evidence stating that familiarity helps in improving the performance of the distributed team, there is always conflicting evidences which report that it can be beneficial only when there is large task and only familiarity is beneficial when there are small tasks. So it always conflicting reports that how the familiarity is based on the task size.

#### VII. CONCLUSION

Familiarity between the team members helps in improving the performance in a distributed team. To support this, various reports are presented and discussed. We have also reported the factors which influence it and how they influence each other. The advantages and disadvantages of team familiarity are also reported and thoroughly discussed.

#### REFERENCES

- [1] Edmondson, A. C. and I. A. Nembhard, Product development and learning in project teams: The challenges are the benefits, *J. of Product Innovation Management* 26(2): 123-138, 2009
- [2] Bradley R. Staats, Unpacking Team Familiarity: The Effects of Geographic Location and Hierarchical Role, *Blackwell Publishing Inc*, 2011
- [3] Haas, M. R. and M. T. Hansen, Different knowledge, different benefits: toward a productivity perspective on knowledge sharing in organizations, *Strategic Management J.* 28(11): 1133-1153, 2007
- [4] O'Leary, M. B. and M. Mortensen, Go (con)figure: Subgroups, imbalance, and isolates in geographically dispersed teams, *Organ. Sci.* 21(1): 115-131, 2010
- [5] Huckman, R. S., B. R. Staats and D. M. Upton, Team familiarity, role experience, and performance: Evidence from Indian software services, *Management Sci.* 55(1): 85-100, 2009

- [6] Reagans, R., L. Argote and D. Brooks, Individual experience and experience working together: Predicting learning rates from knowing who knows what and knowing how to work together, *Management Sci*, 51(6):861-881, 2005
- [7] Maznevski, M.L., and Chudoba, K.M, Bridging Space Over Time: Global Virtual Team Dynamics and Effectiveness, *Organization Science* (11:5), pp473-492, 2000
- [8] Cummings, J.N, Work Groups, Structural Diversity, and Knowledge Sharing in a Global Organization, *Management Science* (50:3), pp 352-364, 2004
- [9] Hinds, P.J., and Bailey, D.E, Out of Sight, Out of Sync: Understanding Conflict in Distributed Teams, *Organization science* (14:6), pp 615-632, 2003
- [10] Hansen, M., The Search-Transfer Problem: The Role of Weak Ties in Sharing Knowledge across Organization Subunits, *Administrative Science Quarterly* (44), pp 82-111, 1999
- [11] Majchrzak, A., Malhotra, A., and John, R, Perceived Individual Collaboration Know-How Development through Information Technology-Enabled Contextualization: Evidence from Distributed Teams, *Information Systems Research* (16:1), pp 9-27, 2005
- [12] Goodman, P. S., S. Garber, Absenteeism and accidents in a dangerous environment: Empirical analysis of underground coal mines, *J. Appl. Psych*, 73(1) 81-8, 1988
- [13] Littlepage, G., W. Robison, K. Reddington, Effects of task experience and group experience on group performance, member ability, and recognition of expertise, *Organ. Behav. Human Decision Processes* 69(2) 133-147, 1997
- [14] Katz, R., The effects of group longevity on project communication and performance, *Admin Sci. Quart*, 27, 81-104, 1982
- [15] Alavi, M., D. E. Leidner, Knowledge management and knowledge management systems: Conceptual foundations and research issues, *MIS Quart.* 25(1) 107-136, 2001
- [16] J. Alberto Espinosa, Sandra A. Slaughter, Robert E. Kraut, and James D. Herbsleb, Familiarity, Complexity, and Team Performance in Geographically Distributed Software Development, *Organization Science* 18, 4 (July 2007), 613-630, 2007
- [17] Simon, H. A., *The Sciences of the Artificial*. MIT Press, Cambridge, MA, 1996
- [18] Goodman, P. S., D. P. Leyden, Familiarity and group productivity, *J. Appl. Psych*, 76(4), 578-586, 1991
- [19] Argote, L., C. A. Insko, N. Yovetich, A. A. Romero, Group learning curves: The effects of turnover and task complexity on group performance, *J. Appl. Soc. Psych*, 25(6) 512-529, 1995.
- [20] Goodman, P. S., S. Shah, *Familiarity and work group outcomes*, 1992
- [21] Espinosa, Familiarity, Complexity, and Team Performance *Organization Science*, *INFORMS*, 18(4), pp. 613-630, 2007
- [22] Harrison, D. A., S. Mohammed, J. E. McGrath, A. T. Florey, S. W. Vanderstoep, Time matters in team performance: Effects of member familiarity, entrainment, and task discontinuity on speed and quality, *Personnel Psych.*, 56(3) 633-669, 2003
- [23] Campbell, D. J, Task complexity: A review and analysis, *Acad. Management Rev.* 13(1) 40-52, 1988.