

# Chapter 91

## Effective Communication among Globally Distributed Software Development Teams: Development of an “Effective Communication” Scale

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### ABSTRACT

*Global software development, an emerging software development methodology within a technology-enabled environment has recently received increased attention from scholars and practitioners. Despite the fact that the lack of effective communication is a major challenge of globally distributed teams, communication research related to the scale development is still very limited in existing literature. Considering the communication challenges and increasing need to measure the effectiveness of communication, this research is focused to develop a scale for “Effective Communication” for globally distributed software development teams. Systematic literature review is performed to identify the best practices of effective communication for the development of “Effective Communication” scale. A questionnaire survey consisting of 29 items is administered in globally distributed software development teams. Confirmatory factor analysis and statistical results depicted that the four-factor model (e.g. stakeholders’ involvement, acculturation, usage of appropriate tools and technology, and information availability) is more parsimonious and an optimal model fit.*

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## **1. INTRODUCTION**

Global Software Development (GSD) is the development of a software project through globally distributed software development teams (Bhatti & Ahsan, 2015). The nature of software projects permits organizations to distribute the work across different locations of the world to gain the benefits of globalization (Majchrzak et al., 2000). The distribution of work can be based upon logical separation of function points or physical separation of different work products involved in the project (Layman et al., 2006; Maznevski & Chudoba, 2000). The separation of function points involves the distribution of different components and modules of the project. Different modules and components of the project can be assigned to different teams under GSD context. This helps to complete different modules of the project in parallel in order to achieve on-time completion of the project (Niinimäki et al., 2012). The separation of different work products allows organizations to assign different work products and artifacts of the project to different teams under GSD context. This helps to utilize the specialized expertise of different resources across the globe to achieve excellent quality in the project. Based upon the scope of the project the work can be distributed module-wise, work-product-wise or both (Layman et al., 2006; Maznevski & Chudoba, 2000). The ultimate objective of GSD is to gain advantages of globalization by utilization of global resource pool (Niinimäki et al., 2012).

The concept of GSD was first observed in early 1990s (Symon, 1998). The software industry observed that GSD provides advantages of reduced cost of software development, parallel completion of work and availability of technical resource across the globe. These advantages encouraged organizations to shift their focus towards GSD (Damian, 2003; and Herbsleb & Moitra, 2001). Therefore, in early 2000s, major paradigm shift was observed and several organizations adopted the phenomenon of GSD (Sahay, 2003). Soon it has been experienced that the successful completion of work under GSD context requires effective communication among members of globally distributed teams. But, the difference of language, culture, time zone and distance among team members of GSD causes negative impact on effective communication during project activities (Gibson and Gibbs, 2006). This challenge of GSD scenario gained much attention of researchers in recent past.

Many researchers worked to explore the phenomenon of effective communication under GSD context. Recent studies provide a clear definition of effective communication and highlight its importance. Bhatti and Ahsan (2015) posited that effective communication is a two way process that involves the sending and receiving of relevant information among team members of GSD. The successful process involves the transmission of complete information and its context to the receivers; and receiving of required information and its meanings from the senders in the global settings. Bharadwaj and Saxena (2006) define that effective communication is the involvement of relevant stakeholders, usage of technology, minimized cultural differences and sharing of all necessary information. This includes the establishment of information databases e.g. knowledge databases and issues databases to exchange important information among team members of GSD. Kreps and Kunimoto (1994) found that effective communication is a process of verbal and non-verbal information exchange. They found that effective communication helps to exchange information and data, and to express opinions, needs, emotions, desires and fears.

Some researchers typically focused to explore the core dynamics of effective communication in GSD context. They believe that effective communication helps the members of GSD to deepen their connections with other members; and improves the teamwork, decision making, and problem solving in GSD environment (Niinimäki et al., 2012). It is also found that effective communication ensures effective team management and improves productivity of the distributed team members (Kim, 2009; Bharadwaj and

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