

**Study on Emergence of Dynamic Organization Structures Based on Social,
Asynchronous and Synchronous Communication and Collaboration
Patterns in IT and Educational Organizations: with Specific Reference to
Organizations in Redmond, USA, and Bangalore, India**

SYNOPSIS OF THE THESIS

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Introduction

Communication is the activity of conveying information. Information; be it thought, message, or data; is transmitted through a variety of means such as speech, images, signals, written words, or behavior (body language). Collaboration is the activity of aligning together or helping others to achieve a common goal. Organizational structure is a set of activities such as task allocation, coordination, and supervision that are directed towards the achievement of the organization's aims or goals (Pugh, 1990).

As organizations are responding with increased investments in the growing array of communication and collaboration technology, communication becomes the epicenter of an organization interactions, new communication patterns are emerging in the forms of asynchronous¹, synchronous² and social³.

Objectives and Scope

The objective of this research is to study the emergence of Dynamic Organization Structures based on Social, Asynchronous and Synchronous Communication and Collaboration Patterns using Electronic Communication Tools using examples of business challenges being resolved using collaboration and communication tools. The expected outputs of this research are:

- Model for creation of dynamic organization structures
- Expected time duration for the life of an organization structure
- Methods of transforming any given dynamic organization structure from one state to another when the end objectives change
- The possibility of having coexistence of multiple organization structures for a given set of diverse organization goals and objectives.

The scope of this research is to examine the various patterns of dynamic organization structures in Information Technology (IT) and Education institutes in Redmond, Washington, USA and Bangalore, Karnataka, India who are deeply engaged in the use of communication and collaboration tools. This work will also seek to identify the following:

¹where the sender and receiver do not receive and / or reply instantaneously i.e. store and forward communication e.g. e-mail, missed instant messages, etc.

²where the sender and receiver are in direct contact and exchange information instantly i.e. real time communication e.g. active instant messaging, voice and / or video

³where the sender and receiver have an element of trust, credibility, reliability and responsibility in their communication

For IT Industry and Education Institutes

- Are communication and collaboration primarily asynchronous than synchronous?
- Are communication and collaboration primarily synchronous than asynchronous?
- Are communication and collaboration equally asynchronous and synchronous?
- Is social communication and collaboration leveraged as a primary medium?
- Is social communication and collaboration leveraged as a secondary medium?

These additional elements are designed to add clarity to some of the disagreements seen in previous empirical research. The additional research will aid in identifying the conditions under which dynamic organization structures emerge based on social, asynchronous and synchronous communication and collaboration.

Research Motivation

The emergence of dynamic organization structures, driven by the advances in technology, has been a subject of numerous discussions and research over the past decade. The current organizational structures are built on the requirements of the industrial era. Current research shows that in the postindustrial era, the focus has shifted from organizing human resources based on skills and not on the job being performed. Since the idea of organizing human resources based on skills and not based on the role has been on the mind of researchers for a long time. The growth of communication and collaboration technology and the ever growing number of research papers on this broad subject of changing organizations, limited research on the use of communication and collaboration tools to derive dynamic organization structure led the researcher to select this topic and the researcher feels that the research will add additional insights to the body of knowledge on this subject and is looking forward to making this contribution.

Contribution of Research

With the help of this study, the researcher would like to introduce the concept of creation of Dynamic Organization structure based on the technology-enabled social, asynchronous and synchronous communication and collaboration patterns in an organization. The resultant dynamic organization structure will help organizations in the creation of groups that are quickly assembled, to help solve critical business challenges.

The benefits derived from this model can range from economic impact, social impact and help drive and align more easily towards organization goals and objectives.

Overview of Research Approach

The overall aim of this research and specific research questions resulted in the research involving a mixed methods study relating to factors influencing asynchronous, synchronous and social communication and collaboration within organizational contexts.

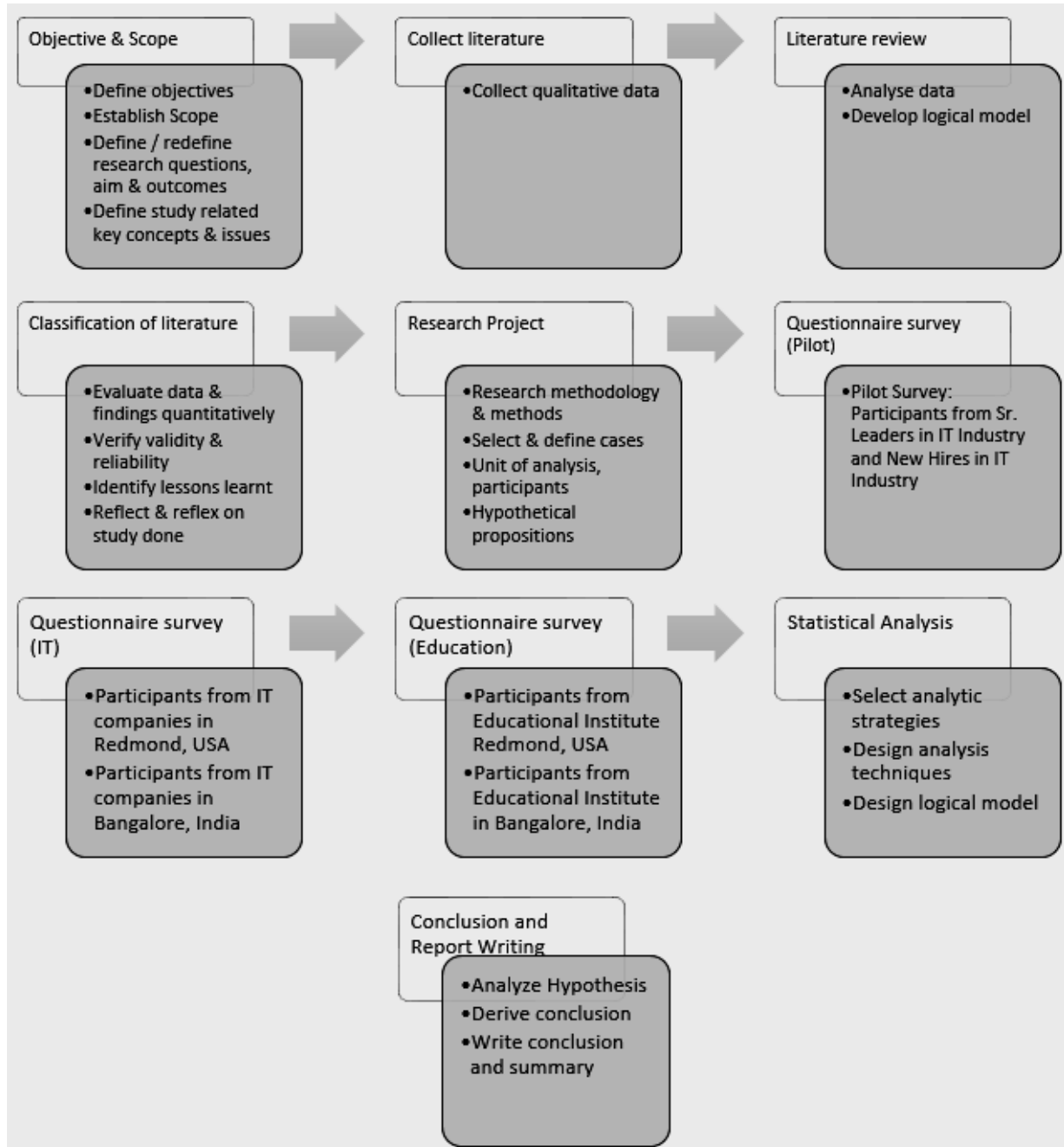


Figure 1: Research Methodology

Development of Conceptual Framework

After conducting review of literature in the field of organization development specifically around dynamic organization structure based on collaboration patterns, a conceptual framework was developed to include a number of areas that have been extensively

researched in the literature. However, in terms of researching these concepts about their influence on dynamic organization structure, the literature provides little direction, and these are highlighted as propositions within the model developed. The proposed model takes into account social, asynchronous, synchronous patterns of communication and collaboration while identifying the eight (8) influencing factors of Availability, Accessibility, Agreeability, Acceptability, Rewards & Recognition, Quest for Knowledge, Fear Factor and Social Power. These eight factors are then independently mapped to the individual areas of research i.e. asynchronous and synchronous patterns of Social, Communication, and Collaboration. A subset of these eight influencing factors will be part of the factors influencing Social communication and collaboration. Similarly, a subset of these eight influencing factors will be part of the factors influencing Communication as well as Collaboration both synchronously as well as asynchronously.

On aggregation of all core defining aspects of Social, asynchronous and synchronous Communication and Collaboration, the final framework emerges which is shown in Figure 8.

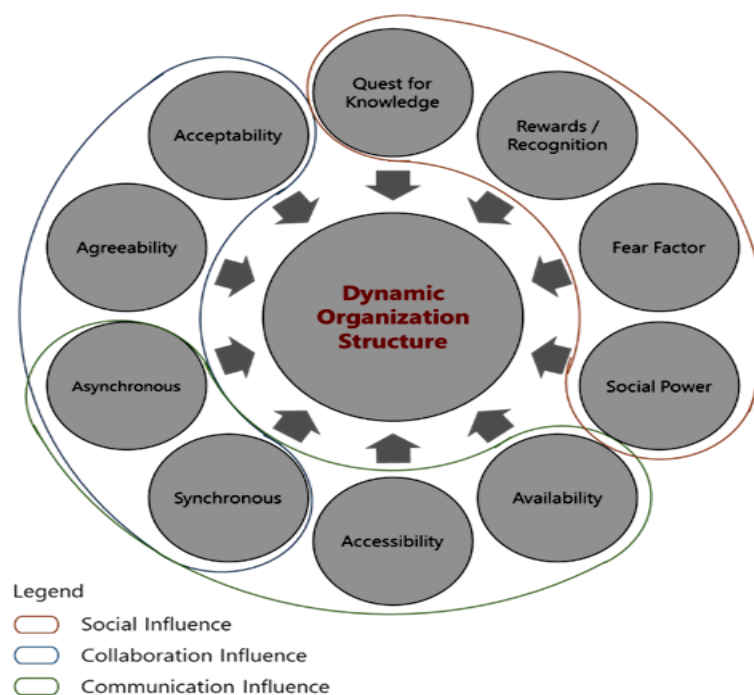


Figure 8: Framework for studying the creation of dynamic organization structure

Research Design & Methodology

This research uses mixed methods approach. The basis of selection of mixed methods approach was done upon the overall purpose of the study, and the research questions identified, the research relating to factors influencing the emergence of dynamic organization

structure within an organization. In this research, a mixed methodology was adopted as mixed methods help with initial generation of rich data. The generation of initial data helps in relation to the relatively unexplored area of asynchronous, synchronous and social collaboration.

The survey instrument comprised of two sections. The first section included demographic data (nominal data) relating to the individual including age, sex, qualifications and position type. The second section of the survey included multiple-choice statements (nominal scales) for participants to respond.

Step 1: Mapping questions and answers

Similar responses to different questions were mapped using a simple 4-character coding of the format – QnAm, where n was question number, and m was answer response.

Step 2: Mapping answers to variables

An approach of code simplification was used to help map the right variable that was being targeted for extraction from the responses.

Data Collection

Google Forms™ was used to administer the survey questionnaire.

Data Analysis

The results of the survey were statistically analyzed using SPSS. The specific methods used for conducting these statistical analyses and their rationale are explained here.

Descriptive Statistics

The first step of the analysis involved conducting of descriptive statistics for all the questions and the items in “Section 1: Participant Information”. Since most items were either measured on nominal or ordinal scales, frequency distribution was calculated.

Testing for Factorability

A factor analysis was used to examine the data collected in the survey. Prior to conducting any factor analysis, the data checked must be tested for suitability for developing a set of factors. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett’s Test of Sphericity are two measures that can inform this decision.

Factor Analysis

Exploratory Factor Analysis (EFA) was used in this study.

Principle Components Analysis

Principal components analysis (PCA) was used as the factor extraction method.

Factor Reliability

Cronbach's alpha was used for testing for reliability for the factors, which resulted from PCA.

Correlation Analysis

Correlation analysis was conducted to determine whether a relationship existed between these factors and the emergence of dynamic organization structures.

IT Industry Results

The research study drew its study population from two high-technology regions: Redmond, WA, USA and Bangalore, India. Redmond has the highest concentration of Cloud-Based IT Companies. With more than 40 IT companies with revenues over \$1Bn are based in the Puget Sound region.

The survey questionnaire was administered to 350 participants from IT Industry in Redmond (representing 51 companies) and Bangalore (representing 12 companies). A total of 250 responses were received from each group, providing an overall response rate of 71.4%.

In summary, for IT Industry in Redmond, the total male population was 85.2%, and female population was 14.8%. Similarly, for IT Industry in Bangalore, the total male population was 73.2%, and female population was 26.8%. Based on the results, usage of electronic tools within the IT Industry in Redmond is prevalent and is in active usage. Interesting observations are high dynamic usage of Text Messaging and E-Mail, Instant Message Chat as well as Web Conference followed by usage of social tools. White Boarding is not actively used as a tool for communication. Social, Asynchronous and Synchronous communication tools are used in equal extent 72% of time. Similarly, for IT Industry in Bangalore, interesting observations are; high active usage of both Text Messaging and E-Mail, Instant Message Chat as well as Web Conference followed by usage of social tools. It is observed that Social, Asynchronous as well as Synchronous communication tools are used in equal extents more than 71% of time.

Education Institutes Results

The research study drew its study population from two regions: Redmond, WA, USA and Bangalore, India. The research goal was to select a college in Redmond and Bangalore respectively with similar composition but in a different cultural setting, offering the same

number of undergraduate degree programs and comparable in their stature and academic rankings. As a result, Bellevue College in Redmond and Vemana Institute of Technology in Bangalore were selected for study.

The survey questionnaire was administered to 350 participants from Education Institute in Redmond and Bangalore respectively. A total of 250 qualified and complete responses were received from each group, providing an overall response rate of 71.4%.

In summary, for Education Institute in Redmond, 54% of respondents were male, and 46% were female. Similarly, for Education Institute in Bangalore, 35% of respondents were male, and 65% were female. All respondents were part of undergraduate degree program. Section 1 of the survey questionnaire gathered data about the use of electronic communication tools in use by respondents. Interesting observations are; high active usage of Text Messaging and E-Mail, Facebook, Instant Message Chat as well as Web Conference followed by usage of cloud tools. Social, Asynchronous as well as Synchronous communication tools are used in equal proportions and are used more than 72% of time.

Similarly, for Education Institute in Bangalore, interesting observations are the high active usage of Text Messaging and E-Mail, Facebook, Instant Message Chat followed by usage of social tools. However, it is observed that White Boarding, Wiki, and Web Conferencing is not actively used. Social, Asynchronous as well as Synchronous communication tools are used in equal proportions and are used more than 71% of time.

Comparing, Contrasting Results of IT Industry and Education Institutes

Besides presenting the findings from IT Industry groups in Redmond (USA) and Bangalore (INDIA) and Educational Institutes groups in Redmond (USA) and Bangalore (INDIA), this study also compares and contrasts the results of these two groups of organizations.

An equal number of responses were analyzed for the four sets of data that received as part of the survey questionnaire administered to respondents. The analysis findings suggest the existence of factors that support the creation of dynamic organization structures in both the sectors. However, there are also subtle differences observed between these sectors concerning the technology being used as well as usage of electronic tools for social, communication and collaboration in both asynchronous as well as synchronous modes. Eight individual factors of availability, accessibility, agreeability, acceptability, rewards & recognition, the quest for knowledge, fear factor, social power confirm the link between organization structure and social, communication and collaboration patterns.

Conclusions & Future Research

Based on the literature reviewed, a conceptual framework was developed to serve as a guide of this research. As the Pilot Phase progressed, a framework for organizational development and organization structure evolved. This framework developed further into the individual sections of Social, Communication and Collaboration components of the conceptual framework. The below Figure shows the framework with the factors identified during the analysis of IT Industry and Educational Institutes groups in Redmond (USA) and Bangalore (INDIA) respectively. Through color-coded groupings, the framework shown provides insight into how this framework emerged from the individual element of the conceptual framework and drew on the potential influencing factors.

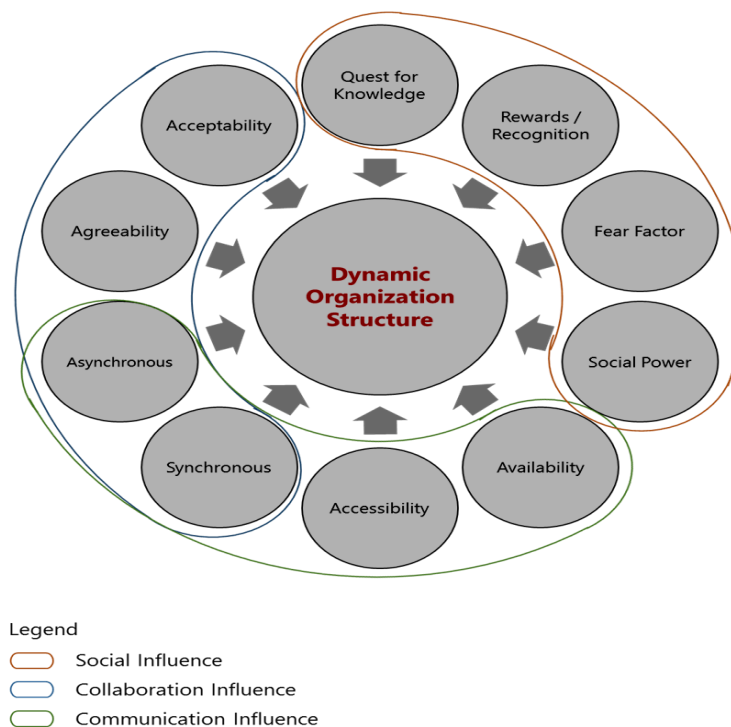


Figure: Framework for Dynamic Organization Structures Based on Social, Asynchronous and Synchronous Communication and Collaboration Patterns

Contributions of research findings

Theoretical contributions

The existing theories provide a useful framework for beginning the discussion about organization structures. However, they are not adequate to explain how the process of emergence of dynamic organization structures occurs and what might impact this process. This study proposes depth to the current body of OD theory by providing a more detailed

explanation of how modern organization structures depend on social, communication and collaboration patterns.

Implications for practice

The implication for management practice of this research is related strongly to change management strategies implemented within organizations. The key enabling factor emerging from the research is within the planning component of the organizational change process. The organizations studied during the pilot, and other phases of research presented effectively of the emergence of dynamic organization structure. The final element of interest to practitioners is the continued resistance to change that is evident in most change management processes.

Research Limitations

It is recognized that in both studies of IT Industry and Educational Institutes, the use of self-reporting carries with it limitations in terms of bias and socially desirable responses.

For Educational Institutes, using only one organization in Redmond (USA) and one in Bangalore (INDIA) is also recognized as a limitation of the study because the results do not allow for comparisons between organizations of different sizes, which may also have an impact.

It is acknowledged that within the organizations in question, the gender mix is biased towards a substantial representation of the male population. It is therefore noted that generalizing to industries with a significant female population is not appropriate.

Directions for future research

This research can be seen as a commencement of a journey into better understanding of dynamic organization structures and raises additional questions best addressed by further studies. In particular, there are other factors of influence for social, communication and collaboration tools that emerged from the pilot study but could not be tested to any significant extent and are an excellent candidate for subsequent studies. Other forms of data collection should be considered to improve the depth or breadth of the research. Longitudinal studies measuring perspectives and attitudes before, during and after the survey would help enabling further research.

Finally, there is a range of other individual factors that may influence social, communication and collaboration that have not been subject to testing by this research.
