EXPLORING INTER TEAM COMMUNICATIONS DURING THE DECENTRALIZATION OF THE WORKPLACE
Sharing Initial Findings from a Mixed-Methods Study of a Multidisciplinary Architectural and Design Firm

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INTRODUCTION

Today, communications do not occur in isolation, but through overlaying networks including face to face, email, phone, instant messengering, and text (Oz, 2018).

Today's work environments are **experiencing a radical evolution**, given the social distancing measures resulting from the pandemic. The complexity of the current workplace requires researchers and designers to examine the essential element of an organization's success – employee communication. Architecture and design teams engage in frequent communications through multiple media on a weekly and daily basis. The success of a project depends on effective communication. **This study will examine the interrelationship between homophily within the team structure, spatial distance in the workplace, and perceived communication networks formed on studio teams.**

RESEARCH QUESTION
What is the **workplace's role** in supporting team communications among architects, engineers, and interior designers in the era of **decentralized workplaces**?

SAMPLE
The location is a **single office** of national architecture, engineering, and interior design firm, with a regional office in the southeastern United States. Their office was established over 50 years ago and employees **250 in this office**. The sample includes three studio teams: Interiors, Office, and Engineering, representing about **70 individuals**. The participants have degrees in architecture, electrical engineering, mechanical engineering, plumbing engineering, and interior design. The participants will include males and females with an age range between 20-65 years of age.

DEFINITIONS
Homophily: is the tendency for individuals to seek interactions with others of similar background, status, or values (McPherson et al. 2001). There are two types of homophily: structural and choice. Structural homophily is the product of social constraints, such as a workplace that is predominantly a single-gender. In contrast, choice homophily is the product of individual preferences for a particular trait or characteristic (Brashears 2007).

Space Syntax: A set of techniques for analyzing spatial layouts and human activity patterns within buildings.

Team Communication: The exchange of information between a defined group of individual employees, including face-to-face interaction, written/graphic communication, or digital interface.

Workplace: Composed of physical conditions, hierarchy configuration, processes, and culture of a defined group of individuals.

Multidisciplinary team: Refers to a diverse group of professionals working together, including architects, engineers, and interior designers.

METHODOLOGY

The study will evaluate defined predictor variables that include time, physical proximity, technology, and individual characteristics (discipline, gender, organizational cohort, team structure) among three design teams.

This study will utilize several data-gathering instruments to triangulate the data and increase the validity of the findings. These include the organization's internal documents, survey questionnaires, and focus group interviews (Glesne, 2006). The data will be collected in three phases: documentation of the workplace, communication network survey, and focus groups.

Part One: The documentation of the physical features and analysis of the human activity patterns (space syntax) will be used to explore the potential relationships between physical space and employees occurring in the workplace.

Part Two: The network survey intends to document the perceived communication networks (face-to-face, video conferencing, phone, email, and instant messenger) occurring within the organization's multidisciplinary design teams. This survey will also gather individual demographic information (gender, age, highest earned degree, assigned studio, and individual role) and communication media satisfaction scores (1-lowest to 5-highest).

Part Three: Focus groups intend to understand employee perceptions surrounding team encounters and communications that surfaced in the space documentation and network survey.

MEANS AND METHODS

ORGANIZATIONAL DOCUMENTS | SPACE SYNTAX | SURVEY | FOCUS GROUPS

DATA AND OUTCOMES

BACKGROUND + DEMOGRAPHICS | PATTERNS + DISTRIBUTION | COMMUNICATION NETWORKS | COMMON THEMES

DISCUSSION

The study aims to understand the frequency and perceived quality of communication needed at an architectural and design firm through three phases.

With the increasing complexity of building design, teams (architecture, engineering, and interior design) are expected to collaborate more frequently with other disciplines. This collaboration occurs through a growing number of communication media, such as face-to-face conversations, phone calls, and emails. Various media theories attempt to explain how individuals choose among these media, based on the type and quantity of information being conveyed (Daft, Lengel and Trevino 1987; Dennis and Kinney 1998). **In addition to the media, individuals also choose the people with whom they communicate.**

This study was inspired by classical Allen Curve research conducted at MIT, which empirically showed a relationship between employees' physical proximity and level of communication (Allen, 1977; Allen, 2007). While Allen's line of inquiry addresses the role of proximity in relation to the frequency of communication and physical proximity, the current dissertation research is proposing to replicate and expand Allen's classical finding in a new context that explores traditional and contemporary workplace modalities of communication with a broader reach of employees (architects, engineers, and interior designers). Additionally, the proposed dissertation research will be looking at **new dimensions** of physical and remote team communication that develop the findings established by Allen and other existing research.

More importantly, **the proposed dissertation study will examine multidisciplinary team communication, an area that was left untapped by Allen**. Within today's office environment, diverse teamwork is becoming the norm in the building disciplines. Also, advances in technology have created new communication tools that have increased communication channels and the ability to work off-site and remotely.

The ability to measure and inform communication patterns will be meaningful in operationalizing project teams' structure, fueling projects with differing ideas, allowing trust to form on teams, and informing the physical layout of project team workspaces. In addition to the potential influences on the organization and workplace layout structure, this process and study can reveal the sociodemographic factors that impact the selection of communication methods building upon earlier findings rooted in richness, perception, and outcome. Thus, this research has implications for (1) *the design of studio workplaces that support information-rich interactions*, (2) *the assignment of individual designers to project teams that are more likely to interact with coworkers from different backgrounds*, and (3) *organizational policy regarding the use of specific communication media. Within today's workplaces, diversity is abundant and complicated by the need for more significant multiple disciplinary approaches impacting many communication variables.*

PILOT STUDIES
Two IRB-approved pilot studies have been completed.

PILOT STUDY 1: 2019
COMMUNICATION NETWORK
In the second quarter of 2019, a pilot study was launched. The study focused on individual designers' tendency to communicate with coworkers of similar backgrounds and identify those conditions under which homophily is reduced. **The study used a social network analysis of the communication patterns in a 17-member studio team working for a national A/E firm located in the southeastern United States.**

A survey questionnaire was then developed in Qualtrics to measure communication across three distinct mediums: face-to-face, phone, and email. The survey asked respondents to indicate how frequently they communicated with each studio team member over the past week, using a 5-point frequency scale (e.g., never, once a week, two to three times a week, once per day, multiple times per day).

PHONE NETWORK | EMAIL NETWORK
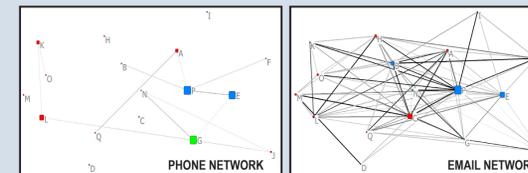
The results show some evidence of homophily as a predictor of information exchanges when controlling for the reporting structure within the studio team. **Face-to-face communication was more likely when members were the same gender and had a shorter walking distance.** In contrast, phone communication was more likely when members were from the same generation. There was some evidence that homophily was a predictor of email communication, but neither the age nor the team members' discipline contributed significantly to any network topology.

FOCUS GROUP
In addition to the network survey, a focus group was conducted to consider:
- *How do an employee's characteristics influence their communication patterns within this design team?*
- *How does the design of this workplace impact patterns of communication?*

Three important themes rose to the top:
- The findings underscored the importance of selecting the mode of communication based on "efficiency."
- Face-to-face communication was identified as critical to being effective in the workplace.
- The largest emerging generational difference was the relative reluctance of older generations to become familiarized with emerging communication technology methods such as instant messenger.

This study made very clear that face-to-face communication is highly essential to all employees, no matter the generational cohort or discipline. The interesting fact about face-to-face is it can only occur within the built environment, not through a phone system, an email, or the rapid-fire of instant messaging. **Face-to-face can only occur when teammates are within the same environment.**

PILOT STUDY 2: 2020

The purpose of second pilot was to understand the frequency and perceived quality of communications during a non-normative period (COVID-19).

A subsequent study took place during May 2020 (COVID-19), while all individuals worked from home.
- Same organization
- Different location
- Larger sample population
- Included instant messenger

Maintaining strong communication channels is vital during times of normal operations but becomes even more indispensable during times of crises, like COVID-19, that mandate remote working conditions. This study aims to understand the perceived quality and frequency of communication needed for functioning and dictated during non-normative periods that force remote workplaces using multidisciplinary teams at an architectural and design firm.

PILOT STUDY LIMITATIONS
While examining homophily in the sampled studio team provided some insight into how designers communicate, there are several limitations to acknowledge which support future research:
- Additional locations, participants, and team structures can be studied
- During a different phase/period of a project or task type
- Explore supplementary communication media

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IRB-APPROVAL FOR PILOT STUDY 1: *MAY 2019* | LAUNCH OF PILOT STUDY 1: *JULY AND AUGUST 2019* | PRESENTATION OF FOCUS GROUP DATA: *JANUARY 2020* | IRB-APPROVAL FOR PILOT STUDY 2: *MAY 2020* | LAUNCH OF PILOT 2: *MAY 2020* | PRESENTATION OF NETWORK SURVEY DATA: *OCTOBER 2020* | IRB-APPROVAL FOR FINAL STUDY: *SPRING 2021* | LAUNCH OF FINAL STUDY: *SPRING 2021*