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The nature of collaboration and the impact it has on workspace design

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Prepared By

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In the 1950's open landscape systems were introduced and forever changed the way interior designers created an office space. The idea of removing walls and using panels to create spaces and privacy was revolutionary. It decreased costs and increased the sense of community at work. Since then, many versions of the panel system have been created and replicated by many different furniture companies.

In the past 10 years, there has been a trend to lower panel heights and create a more open office system, where team work is encouraged and collaboration is supported. Individual spaces are becoming smaller, and designed with community tables and mobile pedestals for easy movement, and many places to have small, impromptu meetings.

There continues to be a debate over which is better in a work environment: open plan or closed offices. Is there even enough evidence to determine which situation is better, which will increase productivity? This paper will examine both sides of the argument, take a closer look at the nature of collaboration, and also discuss trends for the future of workplace design in an effort to explain how productivity is molded by the design of the spaces we work in.

What is the difference between having a private office and simply having an open workstation? How does a company even begin to make a decision which can have such a huge impact on the individual productivity of their employees? There are many meanings attached to the private office. In some work cultures, a private office represents a higher status, or some sort of accomplishment, and in others, it may just be necessary for privacy purposes. In a type of organization where there is a range of open to closed work areas, your work area may represent your rank in the company. Many people see their personal space as just that, an area they can claim as their own, decorate

it as they see fit, and have some sort of acoustical and visual privacy from other employees. This space should be an area where an individual feels they can complete their best work.

On the other side of this debate, open office plans are chosen because they may be more flexible. They are able to better accommodate an ever changing organization. An open plan is usually cheaper initially and, over time, is also designed to represent a certain type of culture; one that is more open, where innovation and creativity is as free-flowing as the communication between employees. This environment promotes a greater sense of camaraderie and adaptability.

Is it possible for an environment to create a certain desired behavior? There are a few key topics associated with this question. They are cost, ease of future change, organizational “fit” and worker performance. Taking these topics, combining them into two overall ideas, and applying those ideas to the open versus closed debate can help to reveal the strengths and weaknesses of both sides. By looking at organizational fit and worker performance together, it is clear to see that ultimately the intents, goals, and objectives of an organization should drive not only the workplace strategy, but its design as well.

Connections need to be made between an organization’s goals and its workplace first by identifying the particular goals and determining what will help these goals be realized. In terms of workplace design, it is what qualities or attributes best support the behaviors that will reach these goals. Every organization is unique, as is each of their goals and objectives; therefore, each workplace will have different characteristics when trying to portray these visions.

In this instance, culture is the key. For example, if an organization has decided that they want the majority of their sales force out in front of the customer everyday, and that they should only be in the office to do minimal work, they may want to give their sales people smaller hotel stations instead of larger offices. The salespeople may be higher up in status, and it would be typical to give them a larger space, however, if they are not going to be there it would be a waste of real estate. By having a smaller space, the sales people are encouraged to be out selling versus staying at the office.

In order to design a workspace which supports certain activities, those activities must first be identified. The main activity which needs to be looked at is the nature of collaboration within the organization. Do certain departments get together often to share information? Are there certain project rooms which need to be accessed by different departments? However, the most important and serious issue to individual employees is that of acoustical and visual privacy. For those who have their own office now, the idea of moving to an open plan is cause for concern.

Michael Brill, an advocate for closed offices, did research in 2001 which focused on “the workplace qualities that have the strongest effect on individual and team performance and job satisfaction.” (Johnson) His team gathered data from over 13,000 workplace users across multiple industries and 40 business types. He ranked the results in order of impact, the most powerful first:

- Ability to do distraction-free solo work
- Support for impromptu interactions (both in one’s workplace and elsewhere)
- Support for meetings and undistracted group work

- Workplace comfort, ergonomics and enough space for work tools
- Workspace support side-by-side work and “dropping in to chat”
- Located near or can easily find co-workers
- Workplace has good places for breaks
- Access to needed technology
- Quality lighting and access to daylight
- Temperature control and air quality

Brill’s work “clearly advocates for the enclosed individual or shared office – making the point that workers are either engaged in quiet work or noise-generating tasks that would distract their neighbor’s ability to do their quiet work.” (Johnson) He suggested that the vast majority of workers spend at least 48 percent of their time in their own workspaces, doing work on the computer, talking on the phone, and having quick meetings. This means that they shouldn’t have to travel to some other shared space to do quiet tasks. Since open offices cannot be made distraction-free, a combination of small single or shared offices should surround an enclosed group work space. Brill’s research also recommends having destination service and public spaces to encourage “chance encounters”. Overall, the heavily trafficked spaces should be separated from the work areas.

Frank Becker, an advocate for open office, also did research on this topic. His research obviously suggests the opposite perspective that the value of private work is decreasing while the value of group interaction is not only increasing but becoming

relevant for organizations who value speed and innovation. In his 2001 paper, “Offices That Work”, he described it this way:

“The major reason for the office today is to bring people together: to socialize and share information; to inspire and inform each other; to provide guidance and feedback...not just to give people a place to work. Relatively little of the work of most office workers requires deep, individual concentration for hours at a time.” While there do need places in the office for that level of work, it does not mean that space which support that need to be exclusive to every employee, nor does it require complete physical separation from others doing the same work. This is the challenge which has faced organizations for many years.

Why do these two highly respected researchers have such extreme variances in how a workplace should be designed? The disconnection may be in that they are describing two very different cultures. While Brill’s work described organizations which place an emphasis on individual work and accuracy, Becker’s is about groups who value teamwork and speed. This emphasizes the idea that workplace design is directly linked to an organizations culture, and this culture must be completely defined and understood in order to assign a specific meaning.

Another way to determine workplace design is to look at cost and future flexibility. Traditionally, an open office plan has been less expensive for both the initial cost and the maintenance. Open offices allow for more simple and cheap building systems. There are also typically fewer control switches for lights, temperature and ventilation. Over time, the cost for change is usually lower for open plans. Reconfiguring furniture is obviously cheaper than reconstruction. There are fewer

changes which have to be made in terms of wall locations, electricity and cabling. Some organizations have adopted a “one size fits all” concept when it comes to office planning, so that they can move people versus moving walls and furniture. These “cubicles” tend to cost \$400 - \$600 per move, compared to \$2,000 - \$4,000 for furniture reconfigurations.

While all of these aspects are appealing, there is some trade-off associated with open planning. At their core, open plans cannot take into account the various activities and processes performed by different departments within an organization. Also, innovations in construction techniques and building systems are becoming more flexible in all areas – from flooring to walls, lowering costs.

Overall, choosing a strategy for workplace design has to be determined not only by the specific organizational culture, but also it should take into considerations such as the type of work being performed, and the balance between team and individual work. There are relationships which need to be uncovered, interpreted, and translated into a productive workspace.

There are four types of culture which mostly every organization falls into. This is the first step towards designing the appropriate workplace. The four types are described as:

Clan Culture: A very friendly place to work where people share a lot of themselves – an extended family. Leaders are considered to be mentors, perhaps even parent figures. The organization is held together by loyalty or tradition. Commitment is high. The organization attaches great importance to cohesion, morale and personal development. Success is defined in terms of sensitivity to customers and concern for people. The organization places a premium on teamwork, participation and consensus.

Hierarchy Culture: A very formalized and structured place to work. Procedures govern what people do. Leaders pride themselves on being good coordinators and organizers who are efficiency-minded. Maintaining a smooth-running organization is most critical. Formal rules and policies hold the organization together. The long-term concern is on stability and performance. Success is defined in terms of dependable delivery, smooth scheduling and low cost. The management of employees is concerned with secure employment and predictability.

Adhocracy Culture: A dynamic, entrepreneurial and creative place to work. People stick their necks out and take risks. Leaders are considered innovators and risk takers. The glue that holds the organization together is commitment to experimentation and innovation. The emphasis is on being on the leading edge. The long-term emphasis is on growth and acquiring new resources. Success means gaining unique and new products or services. Being a product or service leader is important. The organization encourages individual initiative and freedom.

Market Culture: A results-oriented organization whose major concern is getting the job done. People are competitive and goal-oriented. Leaders are hard drivers, producers and competitors. They are tough and demanding. The glue that holds the organization together is an emphasis on winning. Reputation and success are common concerns. The long-term focus is on competitive actions and measurable achievement of goals. Success is defined in terms of market share and penetration. Competitive pricing and market leadership are important. The organizational style is hard-driving competitiveness.

Even though they may like very different types, in actuality, every organizational culture is made up of elements from all four. What makes each unique is which aspects they place the most emphasis on, which change and evolve over time, and which remain constant. That is what defines the culture.

Since incorporating the nature of collaboration is important in workplace design, it is necessary to take a closer look to see what this idea is really about, and how it is help shaping the future of design. “Teaming now seems to describe everything from running into each other in the hall to conferring with a workstation neighbor to the more traditional meeting in a conference. Collaboration appears to denote everything that’s not done alone. We also seem to fall prey to the sweeping generalization that more teaming or collaboration is inherently better than less.” (Johnson)

In order to provide a workstation that truly supports the activities workers perform on a daily basis, we need to understand more about collaboration and teams. There is a large range of behaviors involved, and identifying the environment which supports these behaviors is the key to understanding that type of culture. In the past work was generated like a machine. It was passed from one worker to another, and from one department to another in a linear series of tasks. The actual environment mimicked this view, with rows of individual offices, along with large, medium and small conference rooms.

Throughout the years, it was discovered that doing work in teams would lead to faster, more creative, higher quality, and more productive employees. There has been a lot of research which identifies the value of cultivating social behaviors at work to build rapport and trust, share knowledge, encourage self-expression, and create a sense of community. In the workplace these sorts of behaviors are known as emotional

intelligence. It has been shown that emotional intelligence is just as important as regular intelligence in being a well-balanced employee. This formal and informal mix of knowledge is the basis for creating a workplace which supports various functions.

Judith Heerwagen a highly respected researcher and environmental psychologist, reinforces the idea of teaming and collaboration as one aspect of what she calls “the social nature of work”. The following is a synopsis of the range of social behaviors which Heerwagen feels are relevant to workplace design, and what we tend to define as “teaming”.

Workspace Awareness: This is the sense of knowing what is happening in the immediately surrounding space, such as others’ locations, activities and intentions.

Opportunistic Interactions: These are brief (usually 15 minutes or less) intentional or unintentional conversations in which people engage many times over the work day to ask questions, check facts, discuss ideas, get rapid feedback, pass on information and give help.

Group Work: Group work involves more intense, higher-level interaction including development of ideas, problem solving, coordination, debate, evaluating ideas and solutions. Meetings vary widely in terms of the type and size of the group, the purpose, degree of formality, the support tools and technologies used for interaction, the degree of spontaneity and whether the group is constant or varied over time.

Relationship Development: Friendships and close work relationships develop as a consequence of the above social processes, plus having opportunities to talk privately and disclose information about feelings, concerns and values. Disclosure and

confidentiality are especially important to the development of affective bonds and emotional trust.

Privacy: Privacy serves several important psychological needs, including contemplation, self-evaluation, rejuvenation, creativity, recovery from stress and intimacy.

After summarizing all of her research, Heerwagen describes the various links between each of the social behaviors to the physical environment. It is not hard to notice the common themes of the trade-offs between the benefits of access and privacy. Visible activity is the most important factor which contributes to awareness. It is highest when workers are located in the same space with little or no obstructions between them. By using interior glazing and windows, that allow for visual access into surrounding spaces, and circulation paths that maximize the potential for contact, a greater awareness is created. Workers tend to use physical traces such as workspace lights, food, computers, and clothing to tell others that they are occupying their space even though they may not be there at the moment.

By being able to easily see another person, there is an increased chance for interaction, coordinated actions, and shared understanding. Depending on the nature of work in various organizations, some teams may benefit more from workspace awareness than others. One approach would be to create a room for teams to share so that they can easily see what each other are doing and keep track of the various activities.

“Most informal interactions last less than 10 minutes.” They occur at individual workspaces versus other areas throughout the work environment such as hallways, break rooms, and copy centers. Unfortunately, these informal interactions also increase the

potential for distraction and interruption. The impact of this varies from task to task. The noise from other people talking has been shown to be more detrimental on complex tasks versus simple tasks. To successfully design for opportunistic interactions, again, the nature of the work must be taken into consideration. Along with this the designer must think about the issue of time. Interaction needs vary over the course of a project. Higher levels occur at the beginning, when planning is being done, during the middle for coordination and problem solving, and at the end to pull together results, prepare reports and demonstrations. Many companies choose to create small, enclosed spaces for private conversations and time when extra concentration is needed. These types of spaces work best when they are somewhat soundproof and equipped with the needed technological tools and material.

Research has shown that the link between teamwork and the physical environment has depended a lot on boundaries, seating arrangements which influence discussion, and the use of informal team spaces with surfaces to display concepts and activities. Boundaries are “physical features that determine the degree of access and flow of information between one space and another.” There is a high degree of internal focus which is created when boundaries are used to enclose group work. In this situation, the group can create a higher sense of cohesion among its members. However, if the boundary is too extreme, the group may lose touch and become isolated from the rest of the organization.

Seating certain teams together in one space – by either a cluster of workstations or assembled in the same large room – can lead to an increase of efficiency and productivity. For this reason, members of the same group are able to better coordinate

their activities, and work together spontaneously. By being able to monitor group activities, there is a higher level of problem solving. Groups are able to post deadlines, create “to do” lists, generate questions and information sources, and quickly collaborate on ideas and assignments.

A designer wishing to create a space which promotes team collaboration might want to think about creating more informal spaces. This includes having lounge areas, and white boards. Again, it is important to remember that these spaces have acoustical privacy so they do not disrupt surrounding areas. They also need to have access to technology and telephones.

Relationships develop when people have shared interests, values and concerns. There are many ways in which workplace design can enhance relationship development. By creating an overall sense of awareness, individuals know who is in the space and generally what they are up to. At this stage there is no real need for interaction. There are small interactions called “meeting and greeting” behaviors which are more superficial contact. They typically happen in open or public areas such as the mail room, copy center, or coffee bar. These sorts of spaces promote casual encounters because people don’t feel compelled, or even comfortable, engaging in long conversations. They can move on quickly without seeming rude. These types of encounters do not constitute relationships but rather act as a breeding group for relationships where people gain knowledge about one another.

The third stage of a relationship is mutuality. This is when individuals disclose various levels of personal and/or confidential information about their beliefs, values, concerns, and problems. This type of sharing builds trust, a valuable component in

teamwork. Without trust and understanding teams have a tendency to become dysfunctional. Trust also helps people understand and accept each other's roles, which is necessary when teams are physically separated. This level of a relationship is most likely to occur when people work together for extended periods and in private spaces where they can talk without being overheard.

There are a few different workplace designs which would allow for privacy. Having some type of enclosure is the most obvious layout, but there are four other factors which help accommodate for privacy. The first is locating workers away from main circulation paths and creating more distance between workstations. In open office plans privacy can be difficult to achieve, especially when an organization wants more workstations with lower partitions for greater exposure to windows and sunlight. By including small, enclosed spaces for private work and phone calls you can give workers the occasional confidentiality they need. The main objective is to define the activities needed to be performed and build the environment around those.

There are many ways to design a work space. For those in the design profession it is important to look forward to be able to plan for what's next. Everyone always seems to want to know the next trend in order to be able to build the office of the future. While it would be nice to know exactly what to expect, it is impossible to know for sure. It is possible, however, to predict the trends and help shape the future of office design. There are two different ways to help answer this question. The first is to examine a set of skills which can be applied, and the second is to create a methodology for the organization to utilize them in order to be more aware of change.

The world is constantly changing and accomplishing goals and objectives at an unheard of speed. There has been a certain set of skills defined by Jennifer James in her book Thinking in Future Tense which are now needed to be successful. There is a large gap between those who have these high-level communication skills and access to electronic knowledge and those who do not. It is not only important to redefine the skills needed, but also the character and personality that are compatible with those skills. James proposes that we can develop the skills we need to evolve – to recognize, understand, and adapt to change. The following are the eight skills which will allow us to anticipate and adapt to change:

Perspective: Perspective enables us to think clearly. It is essential for sorting out the positives and negatives of an issue or a situation. It allows us to perceive how the pieces or parts relate to each other and to the whole. It enables us to accurately interpret change and adapt to it. It lets us weave new possibilities. Perspective requires an open mind and awareness of the context of our beliefs and of the filters that can distort reality. Some skills to help maintain awareness include: relaxing, keeping a sense of humor, knowing our own personal history, maintaining resiliency, being conscious of the things we repress, having a high tolerance to chaos, and making time to visualize.

Pattern Recognition: Patterns and trends are words which James uses interchangeably, defining them as simply “sequences of events, ideas or forms of behavior that have economic, social or political significance”. Some trends are more significant than others; a valuable skill is the ability to sense the difference. That skill can lie in first understanding the forces that are driving change and then understanding

processes through which patterns evolve. There are several kinds of patterns or trends which James describes:

- Extension – how might something continue or expand;
- Elaboration – how something that exists can be modified, further developed or perfected;
- Recycling – how an out-of-date pattern can come back;
- Pattern Reversals – the natural tendency, when something is pushed to an extreme, for a movement to occur in the opposite direction;
- Strange Attractions – those odd combinations of seemingly unrelated patterns or trends;
- Chaos – the appreciation of the complexity and unpredictability of things; just when we think we understand something, it turns out to be more than, and different from, what we thought it was.

How can an organization learn from current research to encourage creativity among its workforce? First, creativity usually comes from an extensive, diverse knowledge base. It is important to train groups as a unit to share information about each group member's particular area(s) of expertise. Creativity also depends both on its production and its appreciation. Our style of adapting to change may need to be examined if we are to be successful. Rather than incremental adaptation, at times we need to be able to make a complete transformation. James argues for enough self-awareness to separate our own internal barriers to change from the change itself.

We have had our old notions of the nature and measure of intelligence challenged by the thinking found in books like Emotional Intelligence and Frames of Mind. Each suggests that intelligence may be less about how smart someone is, and more about how someone is smart. Howard Gardner, author of Frames of Mind, describes eight forms of intelligence that he suggests can be learned (James added a ninth):

1. Verbal/Linguistic
2. Logical/Mathematical
3. Visual/Spatial
4. Bodily/Kinesthetic
5. Musical/Rhythmic
6. Interpersonal
7. Intrapersonal
8. Spiritual
9. Practical Intelligence

If we also look at how we solve problems, we can identify the strengths we each bring to our lives. We can also feel hopeful of gaining new skills and aptitudes, rather than feel limited by what we were born with. All of these skills together describe what is needed to anticipate and cope with the future. James writes “we are all becoming more individual and at the same time more a part of a larger whole, whether as an executive of a multinational corporation, a manager, a worker, an entrepreneur or a citizen. As increasing self-knowledge expands our individuality, the shrinking globe and

marketplace will pull us together and increase our interdependence. Leadership will require a deeper and wider consciousness, perception, vision, and wisdom. The skills to think in the future tense will be imperative.”

As individuals, these are skills we can master in order to take advantage of change, and then a company or group can do the same for its organization. It does not matter what in future takes place, the point is you are much more likely to be ready for it if you plan for it. The following are seven steps to help plan for change in the future. By using these steps, an organization can make changes to better define their organization:

1. Determine the area, scope and timing of the decision(s) with greatest relevance to or impact on your organization.
2. Research existing conditions and trends in a wide variety of areas (including those areas you might not typically consider).
3. Examine the drivers or key factors that will likely determine the outcome of the stories you are beginning to build.
4. Construct multiple stories of what could happen next.
5. Play out what the impact of each of these possible futures might be for your business or organization.
6. Examine your answers and look for those actions or decisions you’d make that were common to all two or three of the stories you built.
7. Monitor what does develop so as to trigger your early response system.

There is a future trend belief that surrounds the idea of “working anytime, anywhere”. Based on this belief, there would no longer be a need for offices. Some believe that in

the future, we will all work from home and use video and audio communication to hold the conversations and the meetings for which we used to travel to the office.

This may or may not be the case. As with most things, it is too simple to think there is one solution for every problem. There are some jobs which could be very effectively performed in a “virtual” environment. Since the requirements for interaction vary from job to job and from task to task, it may be more realistic to say that the office is still an optimal place to come together for certain tasks at certain points in time. Technology is enabling more and more freedom of movement, but many functions of the office have everything to do with culture and building an environment to foster the creative process which is extremely difficult to do when people are not physically together.

It has been shown that communication is most effective when each party can experience all the possible sensory cues and signals that are involved. “Teams can perform more effectively when they have built rapport and a sense of belonging to and identifying with the group. As work and the rest of our lives become more blended, we will seek to build communities in all areas of our lives and perhaps make less distinction between our work and personal lives. The office could play an instrumental role in providing the town square gathering place that used to characterize most towns.”

Some organizations are already attempting to create this type of community in the way they plan and design buildings and campuses. Most recently, Nortel has seen dramatic advantages to the city planning approach they took at their Brampton Centre in Brampton, Ontario, Canada. The Brampton Centre is almost one million square feet and sits on 64 acres of land. It is an impressive facility both inside and out. In 1996 Nortel

converted the former manufacturing plant into office space, making it one of the largest office transformation efforts in North America to date.

The interior of the building features an innovative design concept based on the creation of an indoor city with distinct neighborhoods: a “main street”, park-like areas with real trees and natural groves, a health and wellness center and fitness facilities. There are coffee bars, pizza and gift shops, and donut shops. These areas are designed to be seen and experienced by the staff, not hidden away. They are colorful and highly dynamic and entice people to use and enjoy them. Outside there is a 2.5 kilometer walking path, basketball and volleyball courts, a pond and waterfall. The facility has been honored with several Environmental and Design Awards. There are approximately 1,000 employees in Brampton.



Overall, there needs to be a greater emphasis placed on providing work environments which create and support a sense of community and the culture of the organization. It is important to better understand the areas of an office space where people build these types of relationships to help in the creation of a design. The challenge is to learn much more about the nature of collaboration. Also, designers need

to plan and design environments that can continue to adapt as change occurs. They should not be created based on something which has happened in the past, or by what might happen in the future, but rather on the fact that things will change.

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