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This case study describes how the appearance, content, and organization of an Intranet can impact the user's work process. Information about how users find resources and complete work tasks via Intranets was gathered through qualitative interviews and observations with twelve employees in various roles of a real estate company in Raleigh, North Carolina. The study viewed users as active participants who could provide valuable insight into how Intranets should be structured to best support user needs. The study revealed characteristics of Intranets that support users such as organization, content, and visual appearance. The true effectiveness of the Intranet actually depended on the willingness of the user to take advantage of the resources. If users find the information on the Intranet valuable, they are more likely to implement the task into their daily work routines.

Headings:

Intranets

Human-Computer Interaction

Information Design

Usability

AN INVESTIGATION OF HOW INTRANETS SUPPORT USER TASKS

by
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Introduction

Many different types of organizations are implementing Internet technology internally through organizational interfaces, or Intranets, which organize and store information and knowledge that are vital to an organization's success. An Intranet is a website or interface that is used by employees for a variety of different purposes. Organizations have a vast amount of knowledge and information that are being created, stored, and assimilated through Intranets. It is becoming extremely important for people to be able to access this information in a quick and convenient manner. This is particularly important for organizations that permit telecommuting and that have employees who travel often. Intranets differ from Internets because they are private and only people inside the organization can access the information.

Intranets have the ability to facilitate communication, production, and the flow of information if they are implemented in a way that is beneficial to users. Therefore, Intranets must be designed to help people in the organization perform their daily tasks and access important information.

Current Problem

The problem is in determining what content should be provided on an Intranet and how it should be organized so that people within the organization can easily find, use, and understand the information that is available. An Intranet can only be truly successful

if it succeeds in supporting users' performance of daily tasks more quickly and efficiently.

Purpose

The purpose of this study is to determine how Intranets support the tasks of employees in organizations. There are many potential implications of this research that will contribute to a deeper understanding of Intranets. This research will study how users make use of the content on Intranets to carry out work processes. Examining the content and organization of information within Intranets and how users utilize this information is important because it will provide insight for how Intranets should be structured.

Theoretical Perspective

The theoretical perspective of this qualitative field research project comes from grounded theory which is "the attempt to derive theories from an analysis of the patterns, themes, and common categories discovered in observational data," (Babbie, 291). Grounded theory was developed by Barney Glaser and Anselm Strauss in 1967 as stated in the book, *The Discovery of Grounded Theory*. This method involves comparing categories of data for recurring themes. One characteristic of this type of research is that it begins without an initial hypothesis.

Research Question

The research question for this study asks: how do Intranets within organizations assist users in performing tasks and finding the information they need to excel in their jobs?

Definition of Terms

This research is a case study of one organization that involves interviews and observations with employees to determine the effectiveness of the Intranet in supporting their daily tasks. In this study, the participants will be employees. The Intranet is an organizational interface because it is only available to people working within the organization. The interface is the point of communication between the computer system and the user, in this case the Intranet, keyboard, mouse, and menus. The Intranet is an organizational interface because it is a point of communication that connects people in the organization. The daily tasks will be defined by the kinds of work that the participants are required to do on a daily basis. The effectiveness will be measured by how the Intranet helps and supports the participants in performing daily tasks through the content, structure, and organization of information.

Literature Review

Use of Intranets

Intranets utilize web technology to provide a variety of information for employees and serve as a central location for disseminating, creating, and storing company information. Intranets often begin as a tool for distributing company news, policies, and benefits information, but grow to facilitate file sharing, discussion forums, video conferencing, and competitive analyses (McNay, 2000). Intranets can provide direct access to online information and research tools such as email, directories, digital libraries, internal

expertise, frequently asked questions, manuals, bibliographic and sales databases and online training modules (Vishik, 1997).

Unlike Internets, which are often created by professional web developers outside the organization, Intranets are usually developed by people inside. This can include librarians, human resource managers, researchers, marketing managers, and sometimes web developers or other information science professionals (Lamb, 1999).

Security

Intranets raise the concern that information sharing could result in the disclosure of private company information (Scheepers & Damsgaard, 1997). Intranets are usually secured with a Firewall that prevents unauthorized users from accessing the site. Private and important company information should always be password-protected for total security (Swantek, 2003).

Communication

Intranets should be a reflection of the organization's culture and values by supporting the mission and goals (Swantek, 2003). Intranets have a huge impact on organizational processes by facilitating communication and information sharing of important data within an organization (Scheepers & Damsgaard, 1997). Information on Intranets is available to all organization members, creating an "information link" (Vishik, 1997) that enables all users to find information. This information sharing supports organizational networking and ideally creates a sense of community and belonging, often through the use of communication that promotes the sharing of knowledge, ideas, and opinions (McNay, 2000).

Time and Money

Ruppel and Harrington (2001) discuss how Intranets initiate Knowledge Management efforts by compressing time and space and providing a flexible exchange of information. Intranets have the ability to be more successful if they improve worker productivity, learning, and decision making.

Harvey, Palmer, and Speier (1997) provide a summary of areas in which organizations have the potential to increase learning and productivity through Intranets. Publications and reports that were traditionally printed on paper can be available online, possibly saving both time and money. Collaborative workgroups form as employees have access to more people that can work together virtually on projects and tasks. Online reference documents can be made available at any time. Employees have the opportunity to post responses, comments, and questions when it is convenient for them. Interactive communication is possible because surveys, questionnaires, and memos can be distributed and returned online. Web-based training provides employees with the ability to control their instruction and learning of new concepts.

Intranets allow for wider audiences within organizations to access information resources and can increase production and efficiency by allowing greater collaboration among users. The ability to reuse existing company resources facilitates knowledge sharing and can reduce research time by allowing expertise and knowledge to be shared among people within the organization. Resource sharing increases efficiency because users have online access to resources such as publications, databases, and collections of reports (Vishik, 1997).

Intranet Users

There are various groups of people using Intranets in all kinds of organizations including domain experts, internal information brokers, employees, managers, and information experts (Vishik, 1997). All of these groups may work together to create, publish, or locate Intranet resources.

Employees visit the site more often if relevant information and tools help them perform work tasks (Guenther, 2003). Access to new content and the functionality of the Intranet can also contribute to employee productivity, which in turn increases the bottom line and profitability.

Intranets should be familiar and straightforward because returning users perform repetitive tasks for work-related purposes. Head (2000) says that Intranet users are more likely to take the time to learn the content, how it is laid out, and how it works if they need to use it frequently to perform their daily tasks. Therefore, they can tolerate more content, links, and choices on the homepage. As users learn the parts they need the most, they will become familiar with the site. Because Intranets are used for work-related purposes, users prefer speed and efficiency over fancy graphics and photos.

Curry and Stancich (2000) point out the benefits for individual users of Intranets. These include more satisfying and challenging work, increased social interaction, greater autonomy, and increased opportunities for self development. Intranets raise awareness and commitment to organizational objectives and provide greater flexibility with technology and people. Another benefit is that users can search for information that will help them perform their jobs. Information pull is the idea that the user determines what kind of information they need and when to access the resources (Harvey, Palmer, &

Speier, 1997). Users are empowered by the authority to determine what information will be most useful to them and the ability to find it in a timely manner that they control.

Curry and Stancich (2000) found that most users felt that the Intranet was a part of their job and increased the efficiency and effectiveness of their work. They enjoyed the convenience of a single point of access to information and the web availability of important documents. Users found the information to be relevant to their work, but many had difficulties navigating the site and needed basic training in web use. The main motivations for using Intranet services were because of convenience, free access, ease of use, and value.

Expectations of Users

Previous research suggests that most users expect certain things from web sites including a home page that provides links to important information, easy navigation, quick loading time, search features, working links, up-to-date information, and an index or site map (Rubens, 2000). Users should be responsible for learning the basic functions and skills required to use the site, search for information, browse through the content and provide feedback when it is necessary (Rubens, 2000).

Chifwepa (2003) points out several factors that can cause users to have a bad experience with Intranets. These include not having training or guidance on how to use the Intranet, a lack of useful information, and a lack of technical skills and tools.

Management and Organization of Intranets

Good management and organization of content is essential for an effective Intranet. The quality of information must be maintained by updating data, creating new content, and removing information that is outdated (Swantek, 2003).

Standards are extremely important, especially in large Intranets, because they create consistency and familiarity with the appearance of the site. This makes it easier for users to navigate through the Intranet and find information (Scheepers & Damsgaard, 1997). The interface should have a common theme and the navigation should be easy to follow. Logos, color, graphics, and typography should be consistent throughout the site to improve the user experience. There should also be standards for markup languages, databases, and programming languages so that future use of documents will be easier (Fichter, 2004).

Information Overload

Information overload is a concern to users who are faced with huge information spaces that require searching skills and tasks. Some Intranets contain only a small number of pages, but many host millions of documents. It can be extremely difficult for users to find information that is relevant to their work if they do not have the necessary searching skills and the Intranet is poorly organized.

In an effort to reduce this problem, information retrieval has been impacted by the use of Intranets as organizations deal with ways to find information. The ability to conduct quality Intranet research in an efficient way is extremely important to the success of users. Many users prefer simple interfaces over advanced searches (Vishik, 1997). Therefore, Intranets should provide basic research tools that are easy for users to

understand and utilize. Because organizations can have a variety of users, it is important to consider both beginners and experts when organizing the content and designing the interface for an Intranet.

Users as Active Participants

One criticism of studies conducted by information science research using institutional perspectives is that the individual is often seen as a passive user of technology, rather than an active participant and interpreter (Lamb, 1999). This study addressed the users as active participants to learn how their daily tasks were supported by Intranets.

Method

Research Approach

To examine how employees in organizations use Intranets to perform their daily job functions, a case study of one organization was conducted using qualitative field research. Twelve participants were interviewed and observed using the Intranet in their work settings. This type of observation yielded descriptive results that might be difficult to find using other research methods.

Population and Sample

The population included employees of an organization that used an Intranet on a regular basis. Purposive sampling was used to recruit participants for this study. This is a type of non-probability sampling in which the participants were selected on the basis of the researcher's judgment about which ones would be the most useful or representative

(Babbie, 183). Purposive sampling was an appropriate recruiting method because the population is so large and there are so many different kinds of organizations that use Intranets.

Participants

The participants in this case study were employees of a real estate organization. The researcher obtained permission from the organization to carry out the research and conduct interviews and observations in the office. The twelve participants were both men and women of multiple races and were all over the age of twenty one.

Procedures

This case study involved interviews and observations with each of the twelve participants. The interviews were a one-on-one conversation between the researcher and each participant. The duration of the interviews was approximately thirty minutes and consisted of twenty questions about the use of the Intranet in the organization (see Appendix A for the list of questions).

The researcher chose to use qualitative interviewing which is based on a set of topics to be discussed (Babbie, 300). The participants had the opportunity to discuss additional ideas and opinions that were not included in the interview questions. The interviews developed into a conversation and the researcher pursued further information based on the responses. This flexibility gave the participants the opportunity to talk about their use of the Intranet and provide a variety of comments, explanation, and suggestions for improvement. The interviews were audio taped for greater accuracy.

After the interviews, each participant was observed using the Intranet. During the observations, the researcher took notes and recorded empirical observations. The observations allowed the researcher to see how each participant interacted with the Intranet. The participants were asked to show examples of the specific work tasks discussed during the interviews. They were also asked to give opinions and suggestions.

Prior to the interviews and observations, the content and structure of information on the Intranet was examined. Background research about the organization was conducted to ensure that the researcher had a full understanding of the work processes and organizational culture.

The data was analyzed and organized into categories based on the questions or topic areas. The interviews were transcribed and the data was reorganized by topic. As the analysis progressed, the data was also categorized by the job function of the employees to show similarities and characteristics of each type of employee.

Advantages

Qualitative field research involving interviews and observations had many advantages. The face-to-face interaction with the participants provided a deeper understanding of their job, personality, and the ways in which they used Intranets. The qualitative interview resembled a conversation where the participants were asked to talk about their experiences and discuss their opinions. This openness and flexibility produced data and insightful information to support the research question.

The observations effectively provided an understanding of what participants use the Intranet for and how it supports daily work tasks. Observing the participants in their work

environment produced realistic results from a specific situation. The validity was high due to the fact that the participants were observed in their natural work setting.

Disadvantages

There are some disadvantages to qualitative field research that should be considered. First, the results have limited generalizability. It is hard to generalize results to the entire population because participation is small in size and voluntary. Due to time constraints, it was not possible to interview and observe every member of this population. Qualitative field research does not produce statistical results that describe characteristics of the entire population. This case study involved only one organization.

Ethical Considerations

Participation in this study was completely voluntary. The participants were asked to sign consent forms consistent with university guidelines for human subjects research that explained the purpose and procedure of this study before agreeing to participate (see Appendix B to view the consent form). The participants are referred to by their job title to protect their anonymity.

Results

The individuals who participated in the interviews and observations were analyzed by how they use the Intranet to perform tasks. The participants had the following positions: Information Technology (IT) Manager, Account Operations Manager, Accounting Assistant, Graphic Designer, Marketing Manager, Marketing Assistant, General Broker, and five Real Estate Agents. To distinguish between the Real Estate Agents, they are

referred to as Agent A, Agent B, Agent C, Agent D, and Agent E in the order they were interviewed.

Many characteristics of the Intranet were examined including the visual appearance, organization of information, content, communication, user experience, productivity, and tasks performed to determine how the Intranet facilitated information exchange and supported work tasks. The following results summarize the responses and observations topically.

Characteristics of the Intranet

The Intranet was designed by a third party development company approximately five years previous to the study. The marketing department within the real estate organization made minor adjustments to accessible files on the Intranet and managed the news section. The IT department maintained the site and was responsible for helping employees with technical problems.

The landing page contained the form to log into the secure Intranet. Every employee in the company had an assigned username and password to access the site. The organization had offices in Cary, Garner, Fuquay, North Durham, South Durham, Chapel Hill, and Raleigh. Every employee at any one of these divisions had access to the Intranet.

According to the manager of the IT department, the organization used Cisco PIX 501™ firewall for security. Two systems were used for scanning emails for viruses. One was on a linux machine and the other was on the mail server. A corporate antivirus software was used to monitor personal computers. Every office had a domain controller

which authenticated access to certain resources on the network, such as printers and the Internet.

Visual Appearance

The graphical elements of the interface were visually appealing. The top of every page contained the blue and yellow company logo and a faded image of four people talking. The blue and yellow colors were used throughout the Intranet. The headings for each announcement and the IT phone number were in a bold, red font. The navigation bar links were blue and turned yellow when selected. The participants liked the consistent use of colors, the logo, links, and the overall appearance because it improved navigation and helped them use the Intranet.

The graphic designer suggested that the Intranet could be improved with more graphics and uses of art, but attributed this opinion to her position as an artist and graphic designer. She felt that although the appearance was very straightforward it was extremely functional. Agent E said “I usually like fancy websites with a lot of graphics and action, but I think that would bother me all day at work. Most of us use the Intranet very often, so a simple design is probably best.”

Organization

The organization and structure of the Intranet was simple, consistent, and easy to understand. Each page had a top navigation bar that contained links to each section. The participants liked the placement of the navigation and the drop down menus for each section.

The marketing manager said the home page was cluttered with too many links, but was not bothered too much by this because he was familiar with the Intranet. He suggested that the organization of the site could be improved if items with more priority were given higher importance. Although he knew exactly where to go and how to get the information he needed, it would be hard to find some information if he was not familiar with the content and organization of the sections.

The structure of the Intranet was simple, yet detailed enough to provide the necessary information. The sections were divided up logically into categories based on department, job function, or type of information. This helped users navigate through the website to find information and complete tasks.

Content

The participants were satisfied with the content provided on the Intranet and did not suggest any major additions to the site. The Intranet did not have any sections that were never used at all. The users did not have enough time to use all the content provided, even though the information was very useful. The typical session involved a user checking email, looking at the calendar, or going immediately to the section they needed. The general broker went to use the Intranet for a specific purpose and usually did not stray from that task until it was finished.

Agent E suggested that the homepage should be catered to the different types of employees. For example, this agent explained that she frequently visited another website for the new homes division of this organization. Five other employees also mentioned websites that were used often, but not within the Intranet. It would be helpful if there

was a tab or link to other important websites so users could avoid having to log in again or toggle between the two sites.

Updating Content

The IT manager discussed the updating procedures for the Intranet. The organization continuously updated the Intranet to keep up with the dramatic changes in the computer industry. The most frequently updated content included the birthday announcements, company news, employee directory, and calendar. Documents that related to company policies were updated when the policies changed.

The Intranet rarely had any broken links or missing information. The account operations manager said the only broken links she ever encountered were from an outside source. The marketing assistant had an experience with a PDF file that could not be opened.

User Experience

The user experience was very positive. Any negative or bad experience with the Intranet was solved very quickly. Although the participants made suggestions and discussed problems, the Intranet was effective and had become a regular part of their work day.

Training

The participants were not given any additional training or instruction for using the Intranet, beyond the URL, username, and password for access. Agent B said that it took a long time to learn how much information was available. At first, she only used the

email, news, and calendar. Over time, she began to explore the site and was actually impressed by how much information was provided. The Agent C thought training was not provided for everyone because it was assumed that most people are familiar with websites. The IT department offered training on the Intranet and other technologies, for those who needed it. Training was not mandatory or even encouraged in the organization. Employees were expected to take the initiative to explore the resources on their own because the Intranet was effectively designed for intuitive browsing.

The general broker described the training as a continuous process where every new situation required additional information. He explained that the learning process happened over a period of time and in parallel with the different job functions required.

Help

The log in page contained a brief message from the IT Helpdesk and the phone number for reporting problems and questions with the site. Three people in the IT department were available Monday through Friday from 8:00 am to 5:00 pm. During this call, the IT person used remote desktop to access the computer remotely to fix the problem. The fourth agent demonstrated this process and revealed that this was especially helpful for the agents who worked away from the main office. When a computer problem arose, the IT person fixed it very quickly from a remote location.

Productivity

The benefits of the Intranet were determined by the frequency and type of use. The participants agreed that the Intranet helped them excel in their job and perform tasks. The accounting assistant said the Intranet helped him access information, communicate

with other people, and perform job duties quickly. Productivity was improved because the Intranet was an effective tool for streamlining the process of obtaining information and gathering resources. Resources were provided, linked, and organized according to user needs. Important resources that supported work tasks were readily available and presented in a logical way. The Intranet increased productivity by organizing the work processes, providing relevant information, and making communication possible.

All of the participants felt that the Intranet saved time and money. Filing systems and piles of notebooks occupied most of the space in the office before the Intranet was implemented. The Intranet eliminated this need by storing all the information in one location. The account operations manager had a unique perspective derived from working at the organization before the Intranet was developed. She described the large amount of time required to keep up with all the different forms, sheets, and other kinds of informational documents before the Intranet. This format saved a great deal of time and money by opening up more time to do other tasks.

Convenience

The Intranet allowed users to choose when to access information. The Intranet made it possible for employees to access information, without having to interrupt the work day to hear an announcement or look for a new form. Channels for finding certain sources were eliminated as they came together on the Intranet to form a common source of information and tools. The marketing assistant felt that being able to decide which information to pay attention to was very helpful.

Information Overload

The marketing manager said that although the Intranet improved communication, the workload was increased. He felt bombarded with information and other work due to the large amount of resources available. There was not enough time to benefit from all the information that was available on the Intranet.

The IT manager said that one of the most problematic issues with the technology could be attributed to information overload. A great deal of work done with computers in the organization involved the creation of flyers, business cards, newsletters, forms, and other documents. The production volume was enormous and sometimes reached over 500MB of spooled data. This problem worsened when the employee used a network accessible Citrix environment, which allowed a single application to be installed and made available for many users. This part of the Intranet was only made accessible to everyone inside the organization, but the volume of requests was often very large. The server that resided at the corporate location could not handle some of the requests made.

Concerns

The IT department encountered problems related to finding information and user error. In most cases, the problems or questions were not really technical and the answer could be found on the Intranet. The IT manager listed examples of phone calls and emails about problems related to sorting email, creating signatures, or even finding documents. This participant felt that many users did not take the time to look around the Intranet and learn about the various functions because they knew the IT department was available.

User Tasks

The participants performed an incredible amount of tasks on the Intranet depending on their position and job requirements. Communicating, information exchange, and other general tasks that involved documents were performed by all users. Additional tasks were position-related because they were performed by users with specific job titles or duties.

Communicating

The Intranet improved communication by providing one source of information for everyone who chose to utilize the resources. The communication process was supported as information was passed quickly between people in the form of emails, documents, postings, and announcements.

Email.

The most popular task was checking and sending email and all twelve participants accessed email multiple times a day. Email was considered an important form of communication and a familiar way to exchange information. During the observation, the account operations manager navigated to her inbox that contained 285 items, 67 of which were unread.

Email improved communication and facilitated other work tasks. Most users accessed the Intranet to use email, but performed other tasks during the same session. Email served as a gateway to additional information because users were faced with information that prompted new work tasks.

Announcements.

The log in page contained company announcements and employee birthdays. The company announcements usually related to important seminars, upcoming classes, or the latest community involvement. The birthday announcement acknowledged employee birthdays. The top of the home page had an inspirational quote that changed every few minutes. The participants noticed this and most read it on a daily basis. The quote was a great way to motivate and encourage employees.

The home page contained a more extensive list of specific announcements about events, classes, and other news about the company. The announcements were brief, but informative and usually included directions, a schedule, or instructions. Information about company involvement in the community, open houses, and many other kinds of events was provided. Many announcements contained a direct link to additional information either within the site or on an external page. The announcements were visually appealing and contained graphics, logos, or pictures.

The announcements changed fairly often depending on the specific situation. Each announcement was approved by an employee in the Internet relations department before it was posted online. An email link was provided at the bottom of the page for anyone who wanted to submit an announcement to be approved.

The announcements on the home page supported many different user tasks by presenting information that prompted action, involvement, or communication. The up-to-date content provided a reliable source for information and announcements to be read, shared, requested, and utilized for a variety of purposes. Each participant in this case study discussed the company news during the interview, although the frequency of

reading the news varied. The participants rarely used the Intranet for the sole purpose of reading the announcements because other tasks were more demanding. During the observations, they almost always glanced at the news section and skimmed the announcements. The prominent location of the announcements caused the users to perform additional tasks of reading the announcement and following through as necessary.

The agents utilized the news section the most often because the content of the announcements related to their specific job. Many of the announcements directly addressed the agents who were required to take classes or attend events. The news provided information that was important to the agents, so the task had become a part of their daily routine. During the observation, agent B realized that she actually read the news everyday before she checked her email. She never considered this a work task until it was presented to her. The location of the news attracted her attention. She planned to perform the task of checking email and ended up performing several tasks originating from the announcements.

Reading the news had become a habit for agent A. She read the headlines every day before checking email and pursued further information if the announcement pertained to her. As the interview progressed, it became apparent that she did not usually log in for the purpose of reading the news, but always read it when she was performing other tasks.

The account operations manager, accounting assistant, and graphic designer did not read the company news very often because they needed to devote their time to other work tasks. Although the section was on the home page, they did not read the announcements on a regular basis. The news did not pertain to their specific daily duties even though it

was about the company they are working for. They were aware that the news was available and even talked about how they should start paying attention to it. Despite this awareness, they did not feel that reading the news and announcements was completely necessary for them to get their job done. The accounting assistant suggested that he would be more likely to read the news on a regular basis if he had more spare time during the day or if the news related to his specific job.

Directory.

The Intranet contained a directory that listed all the contact information for everyone in the organization and supported communication tasks. The directory contained the email address, mailing address, and phone number of each employee. To communicate via email, most of the participants used their address books instead of the directory because it was more accessible.

The marketing manager, who had never used the directory online, said there was a printed copy in each office that was just more convenient and familiar. The marketing assistant and accounting assistant had also never used the directory to communicate with another employee because they used a printed copy or email signature.

During the observation, the graphic designer explained how the directory worked. She liked that the directory was available and could be used to send email quickly. However, this participant had only used the directory to communicate when she was already logged into the Intranet. The participants liked having the directory on the Intranet and found the tool to be convenient. Even though the directory was not actually utilized as often as other tasks, the comfort of having the resource was appreciated.

Communication between employees was extremely easy, especially when the user was already using the Intranet to perform other tasks.

Some sections of the Intranet had pictures of departmental employees and links to their contact information. This feature improved communication and made it easy to recognize other employees. This was especially helpful for new employees who are not familiar with everyone in the organization. Many of the participants commented that it can be difficult to remember everyone in the company and thought the pictures helped them avoid the embarrassment of not remembering names.

Calendar.

The company calendar on the home page supported communication tasks by providing a schedule of events, information about each event, and a link to pursue additional information. The participants used the calendar to perform work tasks and found it to be very helpful. The frequency of performing this task depended on the job type and individual needs.

The calendar feature was convenient because it was placed prominently on the home page. Participants relied on the content of the calendar for information about important events. During the observations, it was apparent that most participants did not intend to use the calendar before logging into the Intranet, but they quickly pointed it out and said it was very helpful. The agents used the calendar feature the most because it displayed schedules and information that pertained to their responsibilities.

Information Exchange.

The Intranet facilitated information exchange by providing a way to send documents, information, suggestions, and referrals to people in other offices. Communication could occur in many different ways, regardless of the time. Work tasks that involved communication were conveniently completed without scheduled meetings or phone conversations. Two of the participants mentioned the convenience of not having to pick up the phone and wait for the other person to be available in order to communicate or share information.

Document Use

The Intranet was used for the task of creating, saving, and accessing documents. Many types of documents were used such as word documents, spreadsheets, designs, forms, applications, and contracts. The participants discussed the convenience of being able to store everything in one place instead of relying on floppy disks or other devices to transfer data. During the observations, the participants demonstrated the process of finding, creating, and saving their personal files. Every participant had multiple files and documents stored on the server.

The form tabs provided links to the different forms that must be used in work processes. Agent E explained the different forms and how each one related to the different parts of the job. The different circumstances of each day prompted the users to perform work tasks.

Publishing

The graphic designer and IT manager were the only participants that published anything on the Intranet personally. The IT manager made changes to the IT section of the Intranet quite often. The graphic designer posted graphics and designs so that people in the organization could use them. Agent C talked about the process of making a request to have an event approved, but had never actually published on the Intranet.

Research

The task of researching information was mentioned by the general broker and two of the agents. The general broker used the programs to research market trends in the housing industry. Agent E said the Intranet was great for conducting property searches and researching information about buyers, sellers, and even builders. The actual research was different for these two positions, but conducting research was a task that they considered extremely important.

Position Related

Marketing and Advertising

The marketing manager and marketing assistant performed work tasks that related specifically to marketing and advertising. The tasks involved accessing promotional pieces, marketing documents, and templates used to create various newsletters, announcements, and flyers. They also accessed the collection of documents that were used for marketing and advertising in the past.

The marketing assistant spent a great deal of time during the observation explaining the documents that were used most often. For example, this participant used the program

to track all the marketing advertisements and to perform MLS updates. The participants who held marketing positions felt that accessing marketing documents was the most important task they performed.

Graphics

The most important tasks performed by the graphic designer were accessing and posting graphics used in the company documents and publications. The Intranet contained all the graphics and logos used within the company. The graphic designer was responsible for creating new graphics and pictures for important events and publishing the graphics she created for everyone in the company to use. The Intranet was extremely valuable to her because she could access the collection of graphics at any time and could publish new graphics to be used by others. The Intranet allowed other people to conveniently download the graphics from any location.

Real Estate

The five real estate agents performed similar tasks using the Intranet that were related to selling homes, looking for new listings, filling out contracts, promoting specific neighborhoods, and communicating with builders.

The Intranet was particularly helpful for the agents because they could access the necessary documents and information while they were at the site location. The agents did not spend a great deal of time in the office and needed this convenience. Agent D said the Intranet was like having a virtual office that could be accessed from any location. The agents did not have to carry documents or even keep them at their assigned neighborhood.

Discussion

Many factors contributed to the effectiveness of the Intranet in supporting user tasks. The Intranet was effectively designed around the mission and goals of the organization. Logos, company colors, and simple graphical elements improved the user experience and enhanced the visual appearance. Standards and consistency supported the user by easing the experience of finding information and completing work tasks.

Task Oriented

Analysis of the interviews and observations revealed categories of the types of work tasks performed by users. Some tasks were general and performed by almost everyone. Members of the organization shared information frequently and performed various communication tasks including reading the announcements, accessing email, using the employee directory, and utilizing the company calendar. Information was exchanged efficiently and communication often occurred without scheduling and time constraints.

Position related tasks were performed by a specific type of employee and were directly related to the circumstances and situations of a particular day. Some tasks were performed everyday, while other tasks were performed much less frequently.

The major source of revenue for the real estate organization was selling homes. Therefore, it is not surprising that the Intranet provided more resources and information for the employees that generated this revenue. The agents found the Intranet to be exceptionally effective in supporting their daily tasks because more information was available for all of their jobs.

Utilization of Content

The research revealed that users did not always make use of all the content provided on the Intranet due to time constraints and information overload. The Intranet was used more as a tool for completing daily work tasks than for browsing for information. The use of the Intranet did not involve a great deal of browsing or exploration. Most users took the time to browse through the Intranet, but mainly because their work tasks required them to learn. Some users even felt that Intranet use and job learning processes developed in parallel.

Some tasks were supported by the Intranet, but were not performed frequently or even at all. The participants appreciated the support and were comforted by the availability of the information. In the interviews, the participants did not realize how much they actually used the information such as news, documents, and the calendar. The observations revealed that many of the general information and communication tasks were supported and performed very often, even though users did not always intend to perform the particular task when they logged in. When the information and content was presented effectively, performing some tasks created the need or desire to perform additional tasks.

Active Participants

The user had a huge impact on the amount and quality of work tasks performed. The Intranet provided a large amount of information and resources that supported the user, but in many cases the users were too busy to explore all the available resources. The Intranet had to be utilized to its full potential to fully support every work task.

Intranets should be organized to best suit the needs of the user and the user must take the initiative to seek help, support, and information. The effectiveness of an Intranet depends on how the user interacts with the interface and if they decide to integrate the resources into the daily work routine. A well designed Intranet can be extremely effective, but the users must be willing to go through the initial learning process to reach a point where they can truly benefit from the site.

Recommendations

One possibility for improving the effective of Intranets in organizations is to create different versions of an Intranet for different employees. Another possibility is to organize the sections of the Intranet by the type of employee. Using the example of this organization, it might be beneficial to reorganize the navigation according to the type of job function. Including a tab for agents, marketing, and brokers that contained the information relevant to each position may be helpful.

Formal training could improve the effectiveness of Intranets and ensure that the resources are utilized. Training should be required of all employees when they begin work and when major changes are made to the Intranet.

Conclusion

A qualitative field research study was conducted to determine the effectiveness of Intranets in supporting user tasks. Information was gathered from interviews and observations with twelve participants in various roles who are employees of a real estate

company. The data answered the research question by providing specific examples of how the Intranet supported user tasks.

The information revealed that the experience was different for each type of employee depending on their responsibilities and circumstances. A variety of tasks are supported by Intranets if they are effectively designed around the work responsibilities and required tasks of the user. The structure of information and resources should represent the user workflow and contain all the necessary information to complete tasks. It is very important for users to be aware of all the information that is available. The research revealed that a significant amount of tasks were performed without intention. It is significant that the tasks people say they perform and what they actually perform are often different. The users must see the benefits of an Intranet if they are going to implement its use into their daily work routine. The true effectiveness of the Intranet in supporting user tasks ultimately depends on how the user utilizes the resources to perform tasks.

Future Research

Future research should look at the importance of announcements and calendars for planning work tasks. Research about how managers view the use of the news and announcements could be beneficial. It would be interesting to see the difference between how managers intend for information to be used and how employees actually use it. Intranet training should also be studied to determine how training can improve the user's ability to perform work tasks.

Appendix A: Interview Questions

1. What specific tasks do you perform using the Intranet?
2. What do you use the Intranet to accomplish?
3. How do you feel about the content on the Intranet? Is there some content that could be removed? Is there some content that is missing?
4. Do you like the structure and organization of the Intranet? Why?
5. Do you feel the Intranet improves communication within the company? How?
6. Do you feel the Intranet saves time and money? How?
7. Did you receive any training on the Intranet? If so describe the training and how it helped you.
8. What are the benefits of the Intranet?
9. Have you had any bad experiences with the Intranet?
10. Do you like the graphical elements of the interface?
11. Do you publish anything on the Intranet?
12. Is there ever any broken links or missing information on this Intranet?
13. How often do you use the directory?
14. How often do you read the company news?
15. How often is the news updated?
16. Would you use a search feature if it was provided?
17. How long has the Intranet been implemented?
18. Who designed the Intranet for this company?
19. Is the Intranet secured? How?
20. Who has access to the Intranet?

Appendix B: Consent Form

University of North Carolina-Chapel Hill
Consent to Participate in a Research Study
Adult Participants
Social Behavioral Form

IRB Study # _____
Consent Form Version Date: February 21, 2005

Title of Study: Investigation of How Intranets Support User Tasks

Principal Investigator: Kelly J. Wilkie
UNC-Chapel Hill Department: School of Information and Library Science
Study Contact telephone number: 919-932-1631
Study Contact email: johnso34@email.unc.edu
Funding Source: N/A

What are some general things you should know about research studies?

You are being asked to take part in a research study. To join the study is voluntary. You may refuse to join, or you may withdraw your consent to be in the study, for any reason, and at any time without penalty. Your company has agreed to allow the researcher to conduct this study during the work day.

Research studies are designed to obtain new knowledge. This new information may help people who design Intranets to design them to be more useful in the future.

Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this research study. You will be given a copy of this consent form. You should ask the researchers named above, or staff members who may assist them, any questions you have about this study at any time.

What is the purpose of this study?

The purpose of this research study is to learn about how Intranets support the work tasks of employees who use them in organizations. This research will contribute to a deeper understanding of Intranets. This research will study how users make use of the content on Intranets to carry out work processes and determine if Intranets enable users to perform their daily tasks as quickly and easily as possible. Examining the content and organization of information within an Intranet and how users utilize this information to perform their daily tasks is important because it will help determine the way that Intranets should be structured. You are being asked to be in the study because you are an employee of the organization that has been chosen for this case study because it utilizes an Intranet.

How many people will take part in this study?

If you decide to be in this study, you will be one of approximately 12 people in this research study.

How long will your part in this study last?

Your participation in this study will involve a 30 minute interview with the principal investigator. After the interview is completed, you will be observed using the Intranet and will be asked to explain what you are doing. This observation will take approximately 20 minutes.

What will happen if you take part in the study?

If you agree to participate in this study, you will be interviewed. This interview will be a one-on-one conversation between the principal investigator and you. This interview will consist of questions about your use of the Intranet in your organization. This interview is qualitative, meaning that it will be based on a set of topics to be discussed. You will have the opportunity to discuss your own ideas and opinions of the Intranet that you use in your work. At the end of the interview, you will be asked to log into the Intranet and point out the sections that you find the most useful and the most confusing. This will be a short observation of your interaction with the Intranet. You may refuse to answer any question or stop the interview at any time without consequence.

What are the possible benefits from being in this study?

Research is designed to benefit society by gaining new knowledge. You may not benefit personally from being in this research study, but others may benefit because the information that you provide may ultimately improve Intranet design.

What are the possible risks or discomforts involved from being in this study?

There are no known risks or discomforts involved from being in this study. You should report any problems to the researcher.

How will your privacy be protected?

Your privacy and confidentiality will be protected in this study. Key procedures for protecting your privacy and confidentiality will be implemented. Each participant in the study will be assigned a number as an alias. This number will appear in the final report. The name of the organization will also be anonymous, although the type of organization will be discussed in the final report. The actual names of participants and the organization will be secured on the investigator's private computer.

Participants will not be identified in any report or publication about this study. Although every effort will be made to keep research records private, there may be times when federal or state law requires the disclosure of such records, including personal information.

The interviews will be recorded for greater accuracy and to improve the results of this study. The content of these tapes will be transcribed and then analyzed in the final report, but the tapes will not be published. The tapes will be stored in a locked cabinet in the home of the investigator during the study while they are being transcribed. After the tapes are transcribed and the study is completed, they will be destroyed. You may request to have the audio recordings turned off at any time during the interview.

Will you receive anything for being in this study?

You will not receive anything for taking part in this study.

Will it cost you anything to be in this study?

There will be no costs for being in the study

What if you have questions about this study?

You have the right to ask, and have answered, any questions you may have about this research. If you have questions, or concerns, you should contact the researchers listed on the first page of this form.

What if you have questions about your rights as a research participant?

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research participant you may contact, anonymously if you wish, the Behavioral Institutional Review Board at 919-962-7761 or aa-irb@unc.edu.

Participant's Agreement:

I have read the information provided above. I have asked all the questions I have at this time. I voluntarily agree to participate in this research study.

Signature of Research Participant

Date

Printed Name of Research Participant

Signature of Person Obtaining Consent

Date

Printed Name of Person Obtaining Consent

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