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Using Ethnographic Techniques To Define User Requirements – A Corporate Example

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ABSTRACT

Enterprises that use third party application providers to support day-to-day operations have limited independence to access, review, and analyze the data needed for strategic and tactical decision making. Because of security and firewall protection controls maintained by the provider, enterprises do not have direct access to the data needed to build analytical reporting solutions for decision support.

This paper reports an unique methodology used to define the conceptual model of one enterprise's (PPG Industries, Inc.) business needs to reduce working capital when using Application Service Providers (ASPs). The methodology uses ethnographic interview and participant observation techniques to understand the informational needs of the Credit Services Department at PPG as the basis for understanding what *people need to know for decision making and problem solving. A decision support system model to assist PPG in tracking customer payments was the conceptual model delivered from the research, which included detailed information system specifications on the required data.*

INTRODUCTION

The ethnographic technique aids the researcher in identifying cultural descriptions and uncovering meaning to language within an organization. From my 10 years of experience at PPG, the normal workflow process to define user requirements for decision support is through a quick, low cost, rapid application development approach. For example, a few meetings would occur where key individuals in the Credit Services Department would create a "template" on the fields that they feel are needed for analytical reporting purposes. An assignment would be given to information technology where someone would then build and implement a reporting solution based on the fields identified on the template. With this approach, the solution may or may not work out, because information technology functions have a tendency to perform as technicians as opposed to embracing the concept that understanding business needs is the primary reason to build information systems. The ethnographic technique helps information technology associates gain a truer, more real, in-depth meaning and understanding of what people are talking about for problem solving and decision making in order to build more practical and well-received information systems.

THE METHODOLGY

Ethnographic research offers an orientation to understanding the process and structure of a social setting and employs research techniques consistent with this orientation. Ethnographic research is the study of both explicit and tacit knowledge within a culture. The technique is based on gaining an understanding of the acquired knowledge people use to interpret experience and generate behavior. Whereas explicit cultural knowledge can be communicated at a conscious level and with relative ease, tacit cultural knowledge remains largely outside of people's awareness.

To gain an in-depth understanding of the culture, and knowledge based of the Credit Services Department, the ethnographic research technique was selected to construct an understanding to questions such as "why do they do what they do?" and more importantly for me, "what reporting solutions are needed to understand payment behavior of customers so that actions can be prioritized accordingly?" The ability to answer the second question was critical, in order to define the conceptual model and information system specifications based on Credit's user requirements.

WHY THE ETHNOGRAPHIC TECHNIQUE?

Ethnographic research is based on understanding the language, terms, and meaning within a culture. And more importantly, led me to think about what types of questions should I ask and what design methodology should I use? After thinking about the insight of both Jacob and Creswell, and my personal belief system, my decision lent itself towards a qualitative method based on ethnographic techniques. I was drawn to the qualitative method because of its in-depth information-gathering process. I found ethnography as an appealing approach because it promotes an understanding of process, terms and meaning, and beliefs of the people in a particular culture. Interviews, discussions, participant observation, and social interaction would help me attain an understanding of a culture. As opposed to the quantitative approach, which reflects on researching a situation, problem, or hypothesis at a *given point in time,* the qualitative approach using ethnographic techniques is more of an evolutionary *process over time,* that covers months, if not years, for the researcher. The time consideration is important because of the ever changing and evolving environment of the enterprise. New business plans, direction, and project activities frequently change within a business. And, emerging technology processes such as RAD (rapid application development to streamline the process of developing and implementing information systems) continue to change the way information systems are created.

CULTURAL UNDERSTANDING – ROOTED IN LANGUAGE

The design and characteristics researchers can approach in the data collection, analysis and report writing for qualitative research crosses social sciences spectrums such as ecological psychology, holistic ethnography, cognitive anthropology, ethnography of communications, and symbolic interactisim with approaches in anthropology, sociology, and history. Thus, qualitative researchers have options and various possibilities for their design method, drawn from the fields of anthropology, psychology, social psychology, sociology, and education. Various design methods, as noted by Creswell (1994), continued to emphasize the methods that the researcher considers, such as grounded theory which is rooted in sociology, ethnography which is rooted in anthropology, phenomenology which is rooted in psychology, and case studies which is rooted in political science and social sciences.

The narrative and language captured in the field relates to design conclusions for interpretive qualitative research. Ethnographic research is an interpretive approach where the researcher tells a story, is culturally based, and semantic in nature with an overall direction of meeting the research goals and objectives.

CONTEXTUAL MEANING

Language and terms captured during ethnographic research leads to an understanding of *low context* and *high context* dialogue, according to Hall (1976/1981). The culture is understood mainly through communication. High context communication features preprogrammed information where the receiver transmits only minimal information. Low context communication is where most of the information is in the transmitted message to make up for the lack of context and meaning. High context (HC) versus low context (LC) is compared because "insiders" create their own jargon to create boundary markers in order to eliminate outsiders from the group.

With HC communication, the culture of the informants carries the weight of terms for linguistic behavior. Here, a person does not have to say much for everyone in the culture to know implicitly the meaning of the terms. Generally, a high context culture is a tacit culture. LC communication is where the cultural framework and patterns are almost non-existent in their support of linguistic behavior. In this mode, a person is not quite sure of what terms mean unless they are explicitly expressed or articulated.

An example of linguistic behavior through language is found with the term "denormalized data base schema," which is a high context term used by information technology database professionals. When database professionals are discussing design principles, the group does not have to explain the meaning of "denormalized" within this group because they are in a HC culture. If someone who does not understand the term "denormalized," then that person moved the behavior to a LC culture where the parties within the group need explanation of the rules of the groups interaction / situation. When someone needs terms and meaning explained in more detail, then the situation is a LC-based culture.

Hall (1976/1981) also promotes the position that a researcher sees signs, symbols, and semantics as a basis for understanding the reality of a culture. A researcher can understand the group's culture by confirming the semantics of something, through semantic signs. The researcher tries to understand what is reality through the intended thoughts of the interviewee by using Hall's "rich points" technique. Rich points are thoughts, viewpoints, terms, and meanings that are consistent across the group, and are shared by at least three (3) interviewees. The rich points capture words that are important and meaningful to the group's informational needs. The terms and meanings deemed as critical and important to the Credit Services Department for analytical reporting purposes evolved into the informational needs to track customer payment behavior.

INSIDER VS OUTSIDER

This ethnographical study was a continuous project or work effort that complements Berger and Luckmann's (1966) observations on capturing views within a cultural group. They promoted that the foundation of knowledge in everyday life is constructed through language, where language provides symbols as objectively real elements in everyday life. This viewpoint promotes the essential component in capturing reality in everyday life, and that is, language is the baseline to understand meaning through semantic terms. Ethnographic research is completed over time to provide the "emic" or insider's view of a cultural group or organization. The reviewer provides an "etic" or outsider's view to capture the meaning and the knowledge gained through interviewing. The construction and definition of "what is real" in Credit Services can be drawn from the perceptions based on language and symbolics, with the primary methodology based on participant observation. The approach is to gain the same experience that a novice would have coming into a group for the first time. The intent is to gain an understanding of the culture of the group where language is the chief tool for communication, and the framework of a social group speaks through the group's languages.

PARTICIPATION

Any culture consists of knowledge understood without being openly expressed, called tacit knowledge, where informants often know things they cannot talk about or express consciously. Thus, the role of the ethnographer is to make inferences about what people know by listening carefully to what they say and by observing their behavior. That is why it is important for ethnographers to participate as well as observe. Participation allows an ethnographer to experience activities directly, to get the feel of what events are like, and to record perceptions. The participant observation and recording of perceptions for this research allows for analysis to gain an understanding of not only the culture of the Credit Services Department, but the specific data elements and dimensions needed for a decision support reporting solution.

FIELD WORK

The interview process included locating informants across various strategic business units (SBU) and corporate staff functions while interviewing each informant with the intent of capturing common terms, names, symbols, and viewpoints. An ethnographic field book containing field notes was kept to record discussions with the people in Credit Services, using predefined, structured questions or simple observation during department meetings as the basis to gain an understanding of their culture. Ethnographic research is based on gaining an understanding of what is important to a culture through a semantic analysis of terms and language found during the research.

The logistics for the field research included tactics such as identifying key informants to interview, maintaining an ethnographic notebook to denote term and usage within the language, asking descriptive questions to gain insight into perspectives and thoughts to unstructured ideas. Eventually, cultural themes and critical informational needs for PPG emerged from the analysis of the field research results using semantic analysis and domain analysis techniques.

The ethnographer tries to make a verbatim record and capture of what people say through field notes, tape recordings, pictures and anything else which documents the cultural scene. This is a principle frequently violated where the researcher has a tendency to translate the spoken word in terms which are understandable to him or her. With both native, emic terms used by the informants and observer, etic terms used by the researcher, it is important to carefully distinguish them. My field research and interviewing efforts used a combination of techniques to capture the essence of the culture, such as using a tape recorder for storing verbatim dialogue, a condensed account in a field workbook to record the conversations and observations during the interview session, an expanded account in the field workbook on additional details and recall things not recorded during the interview, and a daily journal to record the day-to-day activities, which represent the personal experience of the field work such as experiences, breakthroughs, mistakes and problem areas. The language captured in the tape recordings and field workbook were analyzed and interpreted for cultural meanings, interpretations and insights as the basis to write the final project deliverable, the requirements definition for decision support in the Credit Department.

INTERVIEW PREPARATION

Ethnography is an immersive approach to understand a group's culture and to construct the culture's model on why they respond or react in a certain way. Interviewing is one technique that enables one to gain that insight, with the locating of key informants of the culture to help explain terms that have meaning to the group.

An ethnographic interview is a kind of speech event exchange that captures the many social occasions identified through talking. The elements of explicit purpose, ethnographic explanations, and ethnographic questions were used during the interviewing process with informants. The ethnographic process included an explanation of the project scope and objectives to the informants, with the intent to capture the language for descriptive, structured, and contrasted questions. From the ethnographic records, the goal of building the meaning of terms and the relationship of terms among the members of the group lent itself to the discovery of the passions that motivated the group.

INFORMANTS

The interview process included different informants throughout PPG with informants from strategic associates (strategic business unit directors), tactical members (credit managers, business unit managers), and operational members (users with the business units). Fourteen (14) individuals from throughout the enterprise were interviewed as "key informants" while representing the interests of Credit Services, Treasury, and the SBUs. Also, general observations were captured in the field notebook by sitting and working on a daily basis in the Credit Department area from June, 2001 through December, 2001.

ASK QUESTIONS

The natural process of becoming familiar with a landscape or situation for the ethnographer is found by asking questions. It is a rapport-building process that involves making repeated explanations of the interview goals and objectives and restating what the informants say to confirm key phrases and terms. The interview environment should lend itself to cooperation and participation for all involved by clearly explaining to the satisfaction of the participants the interview goals and objectives.

An interview template, with general questions, was used as a starting point to facilitate the discussions into more in-depth dialogue. The template contained the following questions:

Grand tour overview and entry level questions were:

- What is interesting about working in this department?
- Can you give me an example in question or answer form on a topic of interest to you and your group?
- If I worked in this department, in the first few weeks on the job, what questions would people be talking about? What questions would I be asking?

Descriptive questions were:

- Describe a typical day in this department.
- Describe your day so far.
- Describe the 8th floor layout with roles and responsibilities.
- Describe some specific activities that you worked on in your day so far.

Questions leading to specific examples were:

- Can you give me an example on some of the issues or problems that you are working through from your day so far?
- Can you give me an example of something that you need or would like to have to make your work situation better, easier to manage?
- Can you give me an example of how information system reports help you in your job? Conversely, what's missing or is needed in information system reports that would make your job easier?

Questions based on experience levels were:

- How long have you worked in this department?
- Can you share some of the more interesting experiences?
- What is the experience level in this department?
- How frequently is there job turnover with new associates coming into the department?

An understanding of the native language was addressed during the direct dialogue with the interviewee when terms were used that required a more in-depth definition. In some instances, I asked the informant to say a sentence that used the term to gain a better contextual understanding of the language.

CONCLUSION

An analysis of a culture's language and communication mechanism are important areas to understand in building information systems models, such as the decision support model for this research. The research included the gathering of data requirements for the Credit Services Department at PPG by living and working within the researched community to gain a better understanding of their problem-solving and reporting needs to monitor customer payment behavior. It is based on social dialogue and interaction to gain business insight into their needs through ethnographic techniques. The data requirements became the baseline prerequisite in defining the conceptual decision support model for the Credit Services Department. Currently, the conceptual model is used by PPG's Information Technology Department to develop an application system to assist the Credit Services Department in the tracking and managing of customer payment behavior.

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