Course Code: CIT 221 & 222
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- System
  - From Greek word systema
  - Means an organized relationship among functioning units or components

Body Language and Proxemics

- Form of nonverbal communication that
- We all use & are usually unaware of
- By research
  - Verbally-7 % (in word)
  - Tone of voice- 38 %
  - Facial & Body expressions- 55%
- If you hear only word you will miss what you want to say

Body Language and Proxemics

- Three aspects of Body Language
  - Facial disclosure
    - One of the most controlled parts of body
  - Eye contact
    - Direct eye contact can cause strong feelings, either positive or negative
  - Posture (attitude)
    - Least controlled aspect of the body
    - A good analyst will watch the audience for changes In posture that could Indicate anxiety, disagreement, or boredom (ekgheyemy)

Body Language and Proxemics

Body language is all of the nonverbal information being communicated by an individual. Body language is a form of nonverbal communications that we all use and are usually unaware of.

Proxemics is the relationship between people and the space around them. Proxemics is a factor in communications that can be controlled by the knowledgeable analyst.

Spatial Zones

- Intimate zone—closer than 1.5 feet
- Personal zone—from 1.5 feet to 4 feet
- Social zone—from 4 feet to 12 feet
- Public zone—beyond 12 feet

CHAPTER

6

REQUIREMENTS DISCOVERY

Introduction to Requirements Discovery

- A system requirement (also called a business requirement) is a description of the needs and desires for an information system.
- A requirement may describe functions, features (attributes), and constraints.

Types of Requirements

A functional requirement is a function or feature that must be included in an information system in order to satisfy the business need and be acceptable to the users.

A nonfunctional requirement is a description of the features, characteristics, and attributes of the system as well as any constraints that may limit the boundaries of the proposed solution.

Types of Nonfunctional Requirements

Requirement Type	Explanation
Performance	Performance requirements represent the performance the system is required to exhibit to meet the needs of users. · What is the acceptable throughput rate (rate at which a system achieves its goal)? · What is the acceptable response time?
Information	Information requirements represent the information that is pertinent (relevant)to th users in terms of content, timeliness, accuracy, and format. · What are the necessary inputs and outputs? When must they happen? · What is the required data to be stored? · How current must the information be? · What are the interfaces to external systems?
Economy	Economy requirements represent the need for the system to reduce costs or increase profits. · What are the areas of the system where costs must be reduced? · How much should costs be reduced or profits be increased? · What are the budgetary limits? · What is the timetable for development?
Control (and Security)	Control requirements represent the environment in which the system must · Must access to the system or information be controlled? · What are the privacy requirements? · Does the criticality of the data necessitate the need for special handling (backups, offsite storage, etc.) of the data?

Types of Nonfunctional Requirements (concluded)

Requirement Type	Explanation
Efficiency	Efficiency requirements represent the systems ability to produce outputs with minimal waste. · Are there duplicate steps in the process that must be eliminated? · Are there ways to reduce waste in the way the system uses it resources
Service	· Service requirements represent needs in order for the system to be reliable, flexible, and expandable. · Who will use the system and where are they located? · Will there be different types of users? · What are the appropriate human factors? · What training devices and training materials are to be included in the system? · What training devices and training materials are to be developed and maintained separately from the system, such as stand- alone computer based training (CBT) programs or databases? · What are the reliability/availability requirements? · How should the system be packaged and distributed? · What documentation is required?

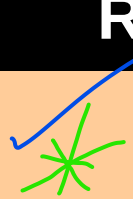
Criteria to Define System Requirements

- Consistent (reliable)
- Complete
- Feasible
- Required
- Accurate
- Traceable
- Verifiable

The Process of Requirements Discovery

- Problem discovery and analysis
- Requirements discovery
- Documenting and analyzing requirements
- Requirements management

Requirements Discovery



Fact-finding is the formal process of using research, interviews, questionnaires, sampling, and other techniques to collect information about problems, requirements, and preferences. It is also called information gathering.

Seven Fact-Finding Methods

- Sampling of existing documentation, forms, and databases.
- Research and site visits.
- Observation of the work environment.
- Questionnaires.
- Interviews.
- Prototyping.
- Joint requirements planning (JRP).

Questionnaires

Questionnaires are special-purpose documents that allow the analyst to collect information and opinions from respondents.

- Advantages?
- Disadvantages?

Questionnaires

- Advantages
  - Can be answered quickly
  - Inexpensive means
  - Real facts expressed
  - Responses can be tabulated and analyzed quickly

Questionnaires

- Disadvantages
  - Respondents often low
  - No guarantee to get answer or expand all question
  - No opportunity for voluntary information
  - Not possible to read body language
  - Good questions are difficult to prepare

Types of Questionnaires

Free-format questionnaires offer the respondent greater latitude in the answer. A question is asked, and the respondent records the answer in the space provided after the question.

Fixed-format questionnaires contain questions that require selection of predefined responses from individuals.

Types of Fixed-Format Questions

- Multiple-choice questions
- Rating questions
- Ranking questions

Questionnaire Procedure

1. Determine what facts and opinions must be collected and from whom you should get them.
2. Based on the needed facts and opinions, determine whether free- or fixed-format questions will produce the best answers.
3. Write the questions.
4. Test the questions on a small sample of respondents.
5. Duplicate and distribute the questionnaire.

Interviews

Interviews are a fact-finding technique whereby the systems analysts collect information from individuals through face-to-face interaction.

- Advantages?
- Disadvantages?

Advantages

- Opportunity to motivate the interviewee
- More feedback from the interviewee
- Permit system analyst to adapt or reward questions for each individual
- possible to read body language

Disadvantages

- Disadvantages
  - Time consuming
  - Success highly depends on system analysts' human relation skill
  - May be impractical due to location

Types of Interviews

Unstructured interviews are conducted with only a general goal or subject in mind and with few, if any, specific questions. The interviewer counts on the interviewee to provide a framework and direct the conversation.

In structured interviews the interviewer has a specific set of questions to ask of the interviewee.

Types of Interview Questions

Open-ended questions allow the interviewee to respond in any way that seems appropriate.

Closed-ended questions restrict answers to either specific choices or short, direct responses.

Procedure to Conduct an Interview

1. Select Interviewees
2. Prepare for the Interview
    1. An interview guide is a checklist of specific questions the interviewer will ask the interviewee.
3. Conduct the Interview
4. Follow Up on the Interview

Interview Questions

- Types of Questions to Avoid
  - Loaded questions(do you have to have both of these columns on the report)
  - Leading questions(you are agree with it. Are you?)
  - Biased questions(how many money for this project. I think 100000)
- Interview Question Guidelines
  - Use clear and concise(short) language.
  - Don't include your opinion as part of the question.
  - Avoid long or complex questions.
  - Avoid threatening questions.
  - Don't use "you" when you mean a group of people.

Sample Interview Guide

Interviewee: Jeff Bentley, Accounts Receivable Manager
Date: Tuesday, March, 23, 2000
Time: 1:30 P.M.
Place: Room 223, Admin. Bldg.
Subject: Current Credit-Checking Policy

Time Allocated	Interviewer Question of Objective	Interviewee Response
1 to 2 min.	**Objective** Open the interview: • Introduce Ourselves • Thank Mr. Bentley for his valuable time • State the purpose of the interview--to obtain an understanding of the existing credit-checking policies	
5 min.	**Question 1** What conditions determine whether a customer's order is approvedfor credit? **Follow-up**	
5 min.	**Question 2** What are the possible decisions or actions that might be taken once these conditions have been evaluated? **Follow-up**	
3 min.	**Question 3** How are customers notified when credit is not approved for their order? **Follow-up**	

(continued)

Sample Interview Guide (concluded)

1 min.	**Question 4** After a new order is approved for credit and placed in the file containing orders that can be filled, a customer might request that a modification be made to the order. Would the order have to go through credit approval again if the new total order cost exceeds the original cost? **Follow-up**	
1 min.	**Question 5** Who are the individuals that perform the credit checks? **Follow-up**	
1 to 3 mins.	**Question 6** May I have permission to talk to those individuals to learn specifically how they carry out the credit-checking process? **Follow-up**	
1 min.	**Objective** Conclude the interview: • Thank Mr. Bentley for his cooperation and assure him that he will be receiving a copy of what transpired during the interview	
21 minutes	Time allotted for base questions and objectives.	
9 minutes	Time allotted for follow-up questions and redirection	
30 minutes	Total time allotted for interview (1:30 p.m. to 2:00 p.m.)	

General Comments and Notes:

Interviewing Do's and Don'ts

Do	Avoid
• Be courteous (polite) • Listen carefully • Maintain control • Probe (inquery) • Observe mannerisms and nonverbal communication • Be patient • Keep interviewee at ease • Maintain self-control	• Continuing an interview unnecessarily. • Assuming an answer is finished or leading nowhere. • Revealing (express) verbal and nonverbal clues. • Revealing your personal biases. • Talking instead of listening. • Assuming anything about the topic and the interviewee. • Tape recording -- a sign of poor listening skills.

Communicating With the User

- Listening - “To hear is to recognize that someone is speaking, to listen is to understand what the speaker wants to communicate.” (Gildersleeve – 1978)

- Guidelines for Communicating
  - Approach the Session with a Positive Attitude
  - Set the Other Person at Ease
  - Let Them Know You Are Listening
  - Ask Questions
  - Don’t Assume Anything
  - Take Notes

Brainstorming

Brainstorming is a technique for generating ideas during group meetings. Participants are encouraged to generate as many ideas as possible in a short period of time without any analysis until all the ideas have been exhausted.

Brainstorming Guidelines

- Isolate the appropriate people in a place that will be free from distractions (diversion) and interruptions
- Make sure that everyone understands the purpose of the meeting
- Appoint one person to record ideas
- Remind everyone of the brainstorming rules
- Within a specified time period, team members call out their ideas as quickly as they can think of them
- After the group has run out of ideas and all ideas have been recorded, then and only then should the ideas be analyzed and evaluated
- Refine, combine, and improve the ideas that were generated earlier