行政院及所屬各機關出國報告

(出國類別：進修)

美國佛羅里達大學短期進修

服務機關：國防大學國防醫學院

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出國地區：美國佛羅里達州

報告日期：92.6.20

行政院及所屬機關出國報告提要

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關鍵詞：護理研究、護理教學、電腦、專業英文

內容摘要：

　　前往美國佛羅里達大學短期進修，主要目的是接受護理教育及電腦課程之訓練，以精進護理教學、研究與臨床服務。基於個人興趣及教學及研究經驗，深感電腦可促進護理品質，因此希望藉由電腦提升個人教學及臨床照護品質，並增進英文專業論文寫作能力，故修習護理研究、專業英文寫作、多變項分析等課程，及參加兩次護理資訊研習會。短期進修期間，未曾怠惰，積極努力學習，以感謝國家培育之恩。

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出國進修返國心得線上作業

國防醫學院護理學系　鍾明惠

摘要

　　前往美國佛羅里達大學短期進修，主要目的是接受護理教育及電腦課程之訓練，以精進護理教學、研究與臨床服務。基於個人興趣及教學及研究經驗，深感電腦可促進護理品質，因此希望藉由電腦提升個人教學及臨床照護品質，並增進英文專業論文寫作能力，故修習護理研究、專業英文寫作、多變項分析等課程，及參加兩次護理資訊研習會。短期進修期間，未曾怠惰，積極努力學習，以感謝國家培育之恩。

動機

　　自從民國 87 年至國防醫學院護理學系擔任大學部社區衛生護理學講師後， 教學與實習增進我對於護理專業領域的認識，更肯定提升護理專業是我的生涯目標。雖然教學使我不斷的成長，與學生討論可以刺激思考，但護理研究常碰到瓶頸，常覺得思考不夠嚴謹、不夠週密。

過程

　　很榮幸及抱著感恩的心情於民國 92 年至美國佛羅里達大學接受專業的短期訓練，雖然這半年來忍受離鄉背景之苦，但是這一切都很值得，此期間讓我覺得學無止盡，世界之寬廣，學習更要虛心，隨時需要以謹慎的態度，努力求取新知，才不至於被社會淘汰。更感謝國家之培育，此次進修機會確實讓我成長。

　　民國 92 年春季至美國佛羅里達大學(University of Florida)接受專業訓練，半年來接受個人數位助理(Personal Digital Assistant; PDA)及網頁設計等電腦訓練，並選修多變項生物統計法及 Dr. Pigg (the editor of Journal of School Health)論文寫作課程，系統性的訓練提升我的專業英文寫作能力(附件一)。此外，並定期與指導老師討論專案及研究計畫，以跨理論模式(The Transtheoretical Model and Stages of

Change)為依據，用電腦完成乳癌衛生教育光碟；及參加 Weekend Immersion in Nursing Informatics, Twenty-First Annual International Nursing Computer and Technology Conference 等二次研習會議，相關知識與能力之培養，確實讓我脫胎換骨，更渴望求取新知，

心得

　　此將近半年期間收獲良多，其中生活費、二次研習費，再加上學費，總共費用確實花費不少，很感謝國家補助可減輕經濟負擔，因此在這半年期間積極努力學習，未曾怠惰，以報答國家培育之恩。

Book Review

Book title: Crucial conversations tools for talking when stakes are high

Min-Huey Chung

"Relationships are the priority of life, and conversations are the crucial element in profound caring of relationships", Dr. Lloyd J. said. The book helps us to think about what we really want to say, and learn how to flourish in every difficult situation. It covers the definition of crucial conversation and mastery skills step by step, and offers advices for tough cases.

In the fast-paced world, society's success depends on effective and proper communication. The book first refers to the term "crucial conversation", so we can promptly catch the interactions that happen to everyone. Then, it demonstrates the tools people use to help create the dialogue in seven steps.

1. Start with heart stands for your own heart. If we can't get ourselves right, we'll have a hard time getting dialogue right.

2. Learn to look and notice a safety at risk. We must stay alert for the moment a conversation turns from a routine or harmless discussion into a crucial one. In the meantime, we can say anything, when it's safe.

3. Make it safe to talk about almost anything. If we spot safety risks as they happen, we can step out of the conversation, build safety, then find a way to dialogue about anything.

4. Stay in dialogue when we're angry, scared, or hurt. By learning to exert influence over your own feelings, we place ourselves in a better position to use all the tools.

5. Speak persuasively, not abrasively. If we start with the controversial, we need to share our facts, tell our stories, and ask for other's paths.

6. Listen when others blow up or clam up. When we try to talk with someone about recent changes, they insult and withdraw to their places. We should listen and encourage them to express different views.

7. Turn crucial conversations into action and results. The book provides four common ways of making decisions: command, consult, vote, and consensus. These four options represent increasing degrees of involvement which brings the benefit of increased commitment.

Each of the chapter includes summary we can clearly understand and review the key point. The last chapter also pulls the skills together and lists principles, skills, and crucial questions to let readers definitely apply the tools to conversations. Finally, the book illustrates the focus on how we think about problem situations and what we do to prepare for them.

We know many conversational skills that really improve our quality of life. But we often do not fulfill them; we still can't promote our communication ability. This book only provides one example to demonstrate the connection between skills and practical actions. And this example may be universal, so it can't exactly help us move into a specific situation. I recommend that the book include some sharing points about people attempting to improve crucial conversations in an upcoming publication. Then, we can review the summary of each chapter and compare with actual stories. Through these experiences our conversational ability will lead to significant, rapid, and measurable improvement in results.

Award Citation

Min-Huey Chung

Mrs. Chung delivers community health education, health promotion, and family nursing with energy and practicality. Mrs. Chung's career encompasses both a registered nurse and public health background for the past 12 years. Her dedication and active involvement in community health nursing, statistics, and informatics made her a forerunner in the field of nursing.

Min-Huey received a public health grant from the National Defense Medical Center in 2002. She educated people to prevent themselves from the infection of dengue and promote clients' self-care ability by home visiting. In addition, she helped residents to recover environment and avoid infection with students and public health nurses after the Naly Typhoon disaster. Through community assessment, she addressed the potential problem and provided the strategies to improve the quality of residents' lives. Her efforts made her the leader of the community health nursing curriculum and practice in the undergraduate program.

Mrs. Chung received medals for the distinguished grades during the graduate school. She contributed to solving the analysis problem and helped conduct the

research based on the analysis concept. In the mean time, she taught baccalaureate nursing research and assisted them in constructing the framework by discussion. Recently, she was recruited as the Co-investigator for a long-term care project of the Department of Health, Taiwan. And she became the Principal Investigator of the National Defense department, Taiwan. Her continuous participation resulted in advancing the research ability.

"Nursing in the digital world: using technology world to optimize patient care," so she got the permission of the agency to accept a six-month training program at the Health Science Education department in the University of Florida. She took Writing for Professional Publication, Statistical Application, and Instruction Technology Training courses to gain the informatics' knowledge. During this period, she will complete the breast cancer education CD-RW.

For her dedication, leadership, and service, the faculty recognizes Min-Huey Chung with the aggressive, potential, and excellent lecturer.

Nursing in the digital world:
Using technology world to optimize patient care
Min-Huey Chung

In 2003, weekend immersion in nursing informatics (WINI) conference focused on trends and issues in practice facing the profession and provided a comprehensive examination of theories utilized by informatics nurses. The workshop identified the key concepts pertaining to nursing informatics.

Susan K. Newbold, MS, RNBC, FAAN, one of WINI faculties, is a Doctoral Candidate at the University of Maryland with an emphasis on nursing informatics and an Instructor at Excelsior College in the online Masters program. She co-chairs the Maryland Board of Nursing Technology Workgroup to determine how information technology can help the nursing shortage.

Susan has numerous publications to her credit including co-editing and writing on informatics topics. She co-edited both the second and third edition of Nursing Informatics: Where Caring and Technology Meet published by Springer-Verlag and now translated into Japanese and Korean.

Throughout her career Dr. Newbold has held a number of professional appointments and consultantships. And she has many editing experience at nursing informatics. The following is an edited transcript of a taped interview conducted in

the WINI conference, in the University of South Florida College of nursing on Friday, 14 March 2003.

Interview

Chung: No one has any experience on implementing nursing information system in Taiwan. What steps should we note in building on the computer system?

Newbold: Every healthcare system is very unique and different from others. The selection and implementation of an information system occurs through a well-defined process known as life cycle of an information system. As needs change, the organization may find it necessary to upgrade information systems periodically. So you can assess what information system your hospital needs to develop, and what characteristics of healthcare delivery system the organization has.

Chung: You have worked for several vendors including Baxter and IBM, in the United States, in Singapore, and in Australia and for a consulting firm. So what don't we pay money to vendors for building on hospital information system?

Newbold: Nursing informatics is the integration of nursing, its information, and information management with information processing and communication technology. If we have those related knowledge, we can facilitate the integration of data,

information and knowledge to support patients, nurses and other providers in their decision-making in all roles and settings. However, the vendors only possess information technology; they didn't recognize how to support patients, and how to connect the healthcare team work.

Chung: Do we need to be a programmer to work in nursing informatics?

Newbold: No. Some nurses do enjoy this work, but it is not necessary to be a programmer to be successful in nursing informatics.

Chung: What journals are published for Nursing Informatics? And how do we publish them?

Newbold: Two journals, Computers, Informatics, Nursing and Computers in nursing, are published for Nursing Informatics. If your research topics and information systems have related field, you can choose other possible journals. However, deciding on a journal is an early step in writing for publications. Selecting an appropriate journal is important because the author's manuscript must be consistent with the type of published articles. The review of journals also guides the author in planning the manuscript. From this review, the author can develop ideas on how to write the manuscript to better fit the journal for submission and about other possible directions for the manuscript.

Chung: What research topics could we study in advance? And what format is for research papers?

Newbold: You can explore every topic you like. If you are an informatics nurse, you have more resources and databases than others do. In the meantime, you can expand personal knowledge and skills, and share ideas and expertise by writing publications. Lack of time and fear of rejection are not your barriers to writing.

I think it is necessary to accept some research trainings for nurses. Before beginning any manuscript, the author needs to first understand the writing and publishing processes. You can follow the research process and answer four important questions of interest t to readers:

1. Why was the study done?
2. What was done?
3. What did the researcher find?
4. What does it mean?

Objective

At the end of this session the participant will be able to identify steps for selecting a system, identify two benefits of structured analysis and identify project management steps.

SYSTEM PLANNING AND ANALYSIS

Sharon J. Majarowitz, MSN, M Ed, RN C

CERNER CORP

TODAY'S ENVIRONMENT

- RESPONSE TO PRESSURE

- INCREASING INTEGRATED

- INFORMATION INTENSIVE

- COMPREHENSIVE HSIs MUST SUPPORT DECISIONS

- KNOWLEDGE BASED

TECHNOLOGY INNOVATION

- IMPACT

- SUCCESS OR FAILURE

- READINESS OF ORGANIZATION

ARE YOU READY?

- BUSINESS REASON IMPERATIVE

- SUPPORT OF ADMINISTRATION

GOAL

- WHAT IS THE END RESULT?

- WHO IS THE DRIVER AND WHY?

---

7 PHASES OF IMPLEMENTATION

- PLANNING
- ANALYSIS
- DESIGN
- DEVELOPMENT
- IMPLEMENT
- EVALUATION
- UPGRADE

THE NURSING PROCESS

- OBSERVE
- ASSESS
- PLAN
- IMPLEMENT
- EVALUATE

THE SAME STEPS

APPLIED IN A

DIFFERENT ENVIRONMENT

SYSTEM ANALYSIS

"STUDY OF THE INTERACTION OF
PEOPLE, AND DISPARATE GROUPS OF
PEOPLE, AND COMPUTERS AND
ORGANIZATIONS"

Yourdon, 1989

3

CONSIDERATIONS

- DOES IT FIT WITH THE MISSION?

- DOES IT WITH WITH THE VALUES?
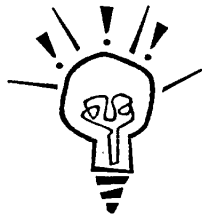
- WHO WILL IT BENEFIT?

- WHO WILL BE IMPACTED?

CONSIDERATIONS

- WHO WILL BE INVOLVED

- WHO WILL DO DATA INPUT?

- WHAT IS THE OUTPUT?

- WHAT IS ANTICIPATED ROI?

VISIONS

- BUSINESS

- MANAGEMENT

- ADMINISTRATION

4

INVOLVEMENT OF NURSING ADMIN

- MANDATED BY JCAHO IN 1991

- INVOLVED WITH:
  - EVLUATING
  - SELECTING
  - INTEGRATING

FEASIBILITY ASSESSMENT

- ANALYZE PROBLEM AND/OR GOAL

- ARE RESOURCES NEEDED
        OR
- HOW WILL SYSTEM SOLVE PROBLEM

FEASIBILITY ASSESSMENT

- ANALYZES ALL PARAMETERS

- PRESENTS POSSIBLE SOLUTIONS

- HIGHLIGHTS IF WORTH COST

FEASIBILITY ASSESSMENT

- ID OBJECTIVES

- DETERMINE SCOPE

- ID INFORMATION NEEDS

ID OBJECTIVES

- PURPOSE OF THE SYSTEM

- END PRODUCT

- ATOMIC LEVEL ITEMS FOR
  REPORTING IF SIGNIFICANT

SCOPE

- ESTABLISHES SYSTEM:
  - CONSTRAINTS

  - CONHTROLS

  - PARAMETERS

  - WILL AND WILL NOT DO

6

INFORMATION NEEDED

- NEEDS ASSESSMENT
  - OUTLINE INFORMATION USERS WILL NEED
  - CLARIFIES WHAT USERS EXPECT
  - ASSISTS WITH DESIGNING
    - INPUT
    - OUTPUT
    - PROCESSING

DURING EVALUATION

- LOOK AT PRACTICE ISSUES

- IF A PROBLEM:

  CORRECT NOW

  DON'T EXPECT SYSTEM TO CORRECT

SYSTEMS HIGHLIGHT PROBLEMS

7

DECISION TIME

COMMITTEE MUST DECIDE:

• PROCEED

• DO NOT PROCEED (THAT'S OKAY)

IF UPGRADE

• MANAGE AND COORDINATE EXISTING SYSTEM

BEFORE UPGRADE!!!

PROJECT DEFINITION AGREEMENT

• NEGOTIATE IT

• ACCEPTED BY
COMMITTEE
ADMIN
FINANCIAL

• WRITE IT

NEGOTIATE AGREEMENT

- ID PROBLEM TO BE SOLVED
- GOAL
- SPECIFIC OUTCOMES
- ACCOMPLISHMENTS
- MEASURABLE BENEFITS
- COST

NEGOTIATE AGREEMENT

- CONSTRAINTS
- BOUNDARIES/LIMITATIONS
- RISKS WITH CAUSES
- TIMING FOR REMAINING PHASES
- RESOURCE IDENTIFICATION

PROJECT DEFINITION DOCUMENT

- FEASIBILITY OF PROJECT
- FORMAL PROJECT REQUESTS
- FORMAL APPROVALS
- PROJECT DEFINITION AGREEMENT

ANALYSIS PHASE

- COLLECT DATA

- ANALYZE DATA

- REVIEW DATA

- ID BENEFITS

DATA

- WRITTEN DOCUMENTS

- QUESTIONNAIRES

- INTERVIEWS

- OBSERVATIONS

ANALYZE DATA

- DATA FLOWSHEET
- GRID CHART
- DECISION TABLE
- ORGANIZATIONAL CHART
- MODEL

REVIEW THE DATA

- SUMMARIZE THE FINDINGS!!!

- SUBMIT TO COMMITTEE

BENEFITS OF STRUCTURED ANALYSIS

- EARLY UNDERSTANDING OF

  - DESIGN

  - USER-FRIENDLINESS

  - POTENTIAL CAPABILITY

NEXT STEP

- PLANNING FOR TRAINING

- PLANNING FOR IMPLEMENTATION

PROJECT MANAGEMENT

• KEY TO SUCCESS

OR

• FAILURE

WHAT IS SUCCESS IN PM

• WHAT IS FAILURE OF A PROJECT:

IF IT DOES NOT RESULT IN
TANGIBLE, COST EFFECTIVE
IMPROVEMENT TO THE USER'S
BUSINESS

PROJECT MANAGER

• UNDERSTAND BASIC GOALS

• SUPPORT BY TOP MNAGEMENT

• BUILD & MAINTAIN INFORMATION
NETWORK

• REMAIN FLEXIBLE

GOAL OF PM

- PLAN

- MONITOR

- CONTROL

METHODS OF PM

- BREAK DOWN PROJECT TO ACTIVITIES
- EACH ACTIVITY HAS ESTIMATES OF:
  TIME
  RESOURCE
  COST

PROJECT CRASHING

"CHEAPEST METHOD TO USE
ADDITIONAL RESOURCES TO
SHORTEN PROJECT TIME"

STAIR 1992

HINTS

- FOR IMPORTANT ACTIVITIES:
- DETERMINE:
  MILESTONES
  DEADLINES
- LIST ALL ACTIVITIES WITH
  COMPLETION DATES

HINTS

- ARE THESE REALISTIC IN PROGRAM

- MONITOR & CONTROL

- DEVELOP STANDARDS FOR PROJECT

- GET INVOLVED WITH LOCAL PMI

FLOW CHARTS ROAD MAP

- BASIC

- STANDARD

- FISHBONE

- DECISION TREE

14

BASIC FLOWCHART

- USED TO FLOW PROCESSES

- GOOD VISUAL

- DIFICULT IF MANY STATEMENTS

FISHBONE
CURE CAUSE NOT SYMPROM

- CAUSE AND EFFECT DIAGRAM
- DESIGNED TO REPRESENT SOME "EFFECT"
- DESIGNED TO REPRESENT ALL POSSIBLE CAYSES
- POLICIES, PROCEDURES, PEOPLE,PLANT

DECISION TREE

- ACTION
- EVENTS
- VALUES
- OUTCOME STATEMENTS
- PROBABILITIES

RFP

- DOCUMENT TO INVITE VENDORS TO
  MEET NEEDS OF ORGANIZATION IN
  CONSIDERATION OF SPECIFIED
  REQUIREMENTS

  Mills, 1995

RFI

- REQUEST FOR INFORMATION
  - WHAT DOES YOUR PRODUCT DO???

SKILLS OF THE I. N.

- MUST POSSESS THE ABILITY TO:

  - THINK OF SYSTEM IN ABSTRACT AND
    PHYSICAL TERMS

  - POSSESS COMPUTER SKILLS

  - COMMUNICATE

  -SURVIVE THE POLITICAL BAT

en Jordan Raygor RN,BC, MN, BCNA

Objective:

- To discuss concepts and theories related to Nursing Informatics and Information Systems

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What are theories and theoretical models?

- A theory explains the process by which certain phenomena occur.
  - Hawking, 1988
- A model is a description or figure used to visualize a theory

Nursing Informatics Theory

- Nursing informatics theory addresses the way nurses use data, information, and knowledge to make decisions and deliver care.
- It is concerned with the technologies for information management and processing and how these modalities affect and are affected by the practice of nursing.

Ref. The Scope of Practice for Nursing Informatics; ANA page 7

Nursing Informatics

Nursing Informatics is the specialty that integrates nursing science, computer science, and information science in identifying, processing, and managing data and information to support nursing practice, administration, education, research and the expansion of nursing knowledge.

Ref. The Scope of Practice for Nursing Informatics; ANA page 3

Nursing Informatics

Nursing Informatics is a combination of computer science, information science, and nursing science designed to assist in the management and processing of nursing data, information and knowledge to support the practice of nursing and the delivery of nursing care.

Ref. Graves and Corcoran, Image 1989

Nursing Nomenclature

Until nurses can name what they do and assign a computer code to that name, we may be neither reimbursed nor recognized as a profession with unique skills and knowledge.

Ref ANA 1989

Nursing Nomenclature

- Naming Concepts

  - Nomenclature: A systematic approach to naming
  - Taxonomies: Rules and principles guiding the classification process

Uniform Minimum Health Data Sets

- Minimum set of information "items" with uniform definitions and codes meeting the needs of multiple data users across the health care system
  - United States Health Information Policy Council

Nursing Minimum Data Sets

- American Nurses Association
  - Steering Committee on Databases to Support clinical Nursing Practice
- International Council on Nursing Practice
  - International classification of Nursing Practice
- American Medical Information Association (AMIA)

National Library of Medicine

- Unified Medical Language system – 1989
  - Includes concepts, terms, and strings
  - Semantic Relationships & mapping of terms
    - Multiple vocabularies relating them to each other
    - Creates a multidisciplinary language for
      - Practice
      - Documentation
      - Quality outcomes

Unified Medical Language System

- METATHESAURUS
  - Languages includes
    - ICD 9 codes
    - CPT Codes
    - DSMO III
    - SNO-MED
    - Omaha, NIC, NOC, NANDA, HHCC

Unified Nursing Language Systems

- 1992 ANA Database Committee Criteria for Recognition as UNLS
  - Clinically useful for making diagnostic, intervention, and outcome decisions
  - Stated in clear precisely defined terms
  - Demonstrate evidence of "reliability"
  - Validated as useful for clinical purposes

Unified Nursing Language Systems

- 1992 ANA Database Committee Criteria for Recognition as UNLS (continued)
  - Documentation of systematic development methodology
  - Process for periodic review
  - Provision for adding, revising, or deleting terms
  - Provide a unique identifier or code for each term

Unified Nursing Language Systems

- Approved Nursing Classification Schemes
  - Nursing Diagnoses "NANDA"
  - Omaha system
  - Nursing Intervention Classification "NIC"
  - Nursing Outcome classification system "NOC"
  - Medicare Home Health Classification (Saba)
  - Ozbolt

Nursing Classification Schemes

- NANDA Nursing Diagnosis (1970's)
  - Research-based patient problem identification
  - Used in nursing education and practice
  - Began as a paper system
  - Acceptance of terms slow

Nursing Classification Schemes

- Omaha System (1970's)
  - Developed by Home Care Nurses
    - Omaha Visiting Nurses Association
  - Validated by research
  - Complete: Problems, interventions, & outcome documentation

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Nursing Classification Schemes

- Nursing Intervention Classification (NIC)
  - Research-based (University of Iowa)
  - Tested in most settings
  - Use is beginning in many sites
  - Use of language in IS is subject to user fees

Nursing Classification Schemes

- Nursing Outcome Classification system (NOC) 1991
  - Research-based (University of Iowa)
  - Identify, label, validate, and classify nurse sensitive outcomes and indicators
  - Evaluate the validity and usefulness of the classification in field testing
  - Define and test measurement procedures for the outcomes and indicators

Nursing Classification Schemes

- Home Health Care Classification (Virginia Saba)
  - US government grant funded development (Georgetown University)
  - Develop a method to assess and classify Medicare home health patients
    - Identify resources required for care
    - Determine expected outcomes
  - Framework and structure for coding and categorizing home health services

Theories

Blum's Model of Information

- Data
  Discrete objects – descriptive, measurable
- Information
  Processed data assigned meaning – verifiable
- Knowledge
  Results when information is synthesized and reproducible.
  Formalized as a knowledge base.

The Nelson Data to Wisdom Continuum
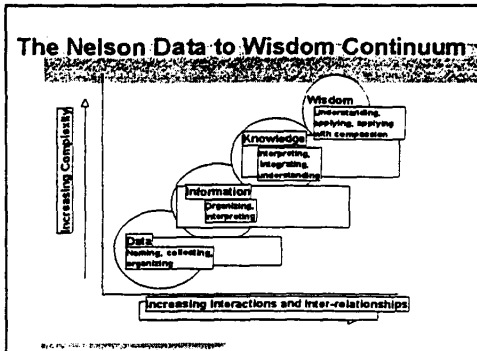
Related Theories

- Lewin's Change Theory

  - Unfreezing: requires information which discontinues the current behaviors or attitudes. It also requires some sense that change can be safely made.

  - Changing or Moving: presenting new directions and developing new behaviors and attitudes based on new information. A learning process and social support is critical to this phase.

  - Refreezing: integrating the changes with existing behavioral frameworks to recreate a natural, whole, and stable entity.

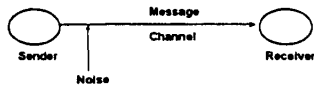## Related Theories

- Communication Theory
  - Message transmitted
    - Sender
    - Receiver
  - Verbal or nonverbal
  - "Noise"
    - Facilitators and inhibitors

Shannon and Weaver's
Information/*Communication* Model

A sender transmits a message over a channel to a
receiver.

Related Theories

- Computer integration
  - Resistance based on
    - Simple resistance to change
    - Fear of "ruining the system" (doing permanent damage)
    - Impractical expectations of the computer
    - Computers will replace human tough
    - Gender related sex-role stereotypes

Related Theories

- System theory
  - A change in any part of a system affects the entire system
  - The total system is greater than the sum of its parts

Related Theories

- Automated Systems (Yourdon)
  - More specialized – less adaptable
  - Larger the system the more resources to maintain it
  - Large systems can be partitioned into smaller systems
  - Systems grow

Diffusion of Innovation

- How individuals and communities respond to change
  - Classified individuals based on response to change
  - Classified organizations based on their response to change
    - Rodgers (1995)

Individual Response to Change

- Innovators
- Early adopters
- Early majority
- Late majority
- Laggards

Organizational Response to Change

- Centralization
- Complexity
- Formalization
- Interconnectedness
- Organizational Slack

Related Theories

- Adult Learning Theory
  - Based on the premise that in order for adults to learn, there must be a perceived need, practical application, and relevance to their situation

Ref: Guide to Nursing Informatics, HIMSS 1996

Adult Learning Theory

- Unique learning characteristics of adults
  - Adults are self directed.
  - Adults life experiences and cognitive structures are used to interpret new learning.
  - Adults want to solve problems not memorize facts.
  - Adults learners want to be treated with respect and have previous learning acknowledged.
    - Knowles (1970)

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