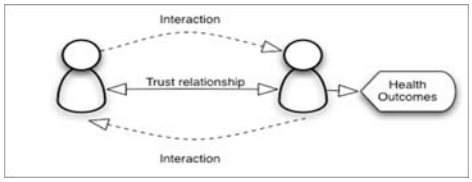
TRUST AND TECHNOLOGY INTERACTION IN PRIMARY CARE

Onur Asan, MS
Enid Montague, PhD
Industrial and Systems Engineering
UW-Madison

WISCONSIN
UNIVERSITY OF WISCONSIN-MADISON

SIGNIFICANCE OF THE PROBLEM

Understanding the factors that contribute to patient-doctor trust or distrust will lead to guidelines that can help doctors more effectively interact with their patients



Human Computer Interaction Laboratory
Department of Industrial and Systems Engineering
College of Engineering University of Wisconsin - Madison

BACKGROUND OF HEALTH CARE AND TECHNOLOGY

Previous studies have found that patient trust in care providers predicts quality variables such as:

- sustained enrollment in health plans (Zheng, 2002)
- patient satisfaction (Thom, 2002)
- utilization of preventive services (Pearson, 2000)
- adherence to medical advice (Thom, 2002)
- malpractice litigation (Pearson, 2000)
- health status and (Pearson, 2000)
- health service seeking behaviors (Pearson, 2000)

Human Computer Interaction Laboratory

Department of Industrial and Systems Engineering
College of Engineering University of Wisconsin - Madison

BACKGROUND OF HEALTH CARE AND TECHNOLOGY

Trust in technology - a person's belief that electronic or mechanical devices used to replace or augment human labor will perform effectively (Sheridan, 2001)

Human Computer Interaction Laboratory

Department of Industrial and Systems Engineering
College of Engineering University of Wisconsin - Madison

SPECIFIC AIMS

Quantify doctor-patient interactions using a validated behavioral coding methodology

↓

Quantify doctors' use of computers as an interaction variable

↓

Collect patient ratings of trust and attitudes about technology

↓

Development of new ways to measure trust

Human Computer Interaction Laboratory

Department of Industrial and Systems Engineering
College of Engineering University of Wisconsin - Madison

METHODOLOGY/APPROACHES

Participants: 100 volunteer patients ≥18 years of age and their doctors in a primary care clinic

Two forms of data will be collected: observational and questionnaire

- Audio/ video will be collected with three channels
  - 1) doctor face at computer
  - 2) patient face
  - 3) doctor-patient wide angle of exam
- Questionnaire will include existing measure about the interpersonal trust and demographics

CODING SCHEME

What is coding?

- Assigning attributes to each nonverbal behavior
- Describing behavior in an accurate and quantitative way
- Determining the occurrence of physician and patient's nonverbal behavior

Why is it important?

- The classification of nonverbal behavior (gazing, touch etc.) enables us to understand the relationship that these nonverbal behaviors have to patient satisfaction, empathy, and trust of the doctor

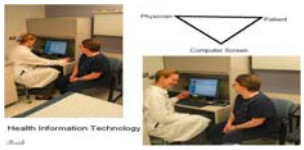
PREVIOUS STUDIES USED CODING IN HEALTH CARE

- Coding patient-centered behavior in the medical encounter (Zandbelt, 2005)
- Doctor, patient and computer—a framework for the new consultation (Pearce, 2009)
- Primary care physicians' use of an electronic medical record system: a cognitive task analysis (Shachak, 2009)

OUR CODING SCHEME

The proposed coding scheme has 3 parts:

- Subject (Doctor and Patient)
- Behavior (Gaze, Typing, Task Touch, Social Touch)
- Object (Doctor, Patient, Computer, Chart, Tool etc.)



OUR CODING SCHEME

- Standard procedure for each coders
- Reliability check between each coders
  - For inter-coder reliability, a Kappa value of 0.60 to 0.75 could be considered good and over 0.75 could be considered excellent (Bakeman, 2000)

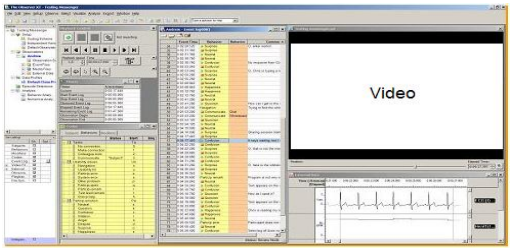
		Week1	Week2	Week3	Week5
Average	Proportion of agreements	0.70	0.79	0.79	0.77
	Kappa	0.67	0.77	0.77	0.74
Range	Proportion of agreements		0.78~0.80	0.76~0.82	0.76~0.79
	Kappa		0.76~0.78	0.74~0.80	0.73~0.76
		Week6	Week7	Week8	Week9
Average	Proportion of agreements	0.74	0.78	0.77	0.66
	Kappa	0.72	0.76	0.75	0.62
Range	Proportion of agreements	0.70~0.81	0.75~0.80	0.75~0.81	0.54~0.78
	Kappa	0.69~0.79	0.73~0.78	0.73~0.79	0.50~0.76

* Human Computer Interaction Laboratory Cold Study Reliability results

Human Computer Interaction Laboratory
Department of Industrial and Systems Engineering
College of Engineering University of Wisconsin - Madison

NOLDUS/ OBSERVER

This software is used to code videos in a systematic way and also sync videos with other measurements.



Human Computer Interaction Laboratory
Department of Industrial and Systems Engineering
College of Engineering University of Wisconsin - Madison

THE CONTRIBUTION OF THIS PROJECT TO THE FUTURE STUDIES

- Development and validation of a behavioral trust in physician instrument
- Evaluation of work system characteristics and negative interactions
- Evaluation of effect of technology implementation over time
- Allows caregivers to review their performance to improve the quality of their patient interaction

Human Computer Interaction Laboratory
Department of Industrial and Systems Engineering
College of Engineering University of Wisconsin - Madison

Thank You

Contact info:
Onur Asan
asan@wisc.edu
Enid Montague
emontague@wisc.edu
Human Computer Interaction Lab
Industrial and System Engineering
UW-Madison
http://www.enidmontague.com/