Factors Affecting Physician-Patient Communication in the Medical Exam Room

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Abstract. The recent push towards patient-centered health care has put a greater emphasis on patient health literacy. Health literacy is influenced by communication between physicians and patients. We conducted research at a local health clinic to examine communication between physicians, patients, and interpreters that were present to assist patients with limited English proficiency (LEP). We used the framework of Distributed Cognition to broaden our unit of analysis beyond individuals to include artifacts and the physical environment. We analyze three factors influencing communication: the availability of electronic medical records (EMR), the use of paper documents, and the presence of an interpreter. The physical space and artifacts are shown to impose constraints upon interaction and the flow of information throughout the exam room. We discuss implications for redesigning medical examination rooms and information technologies to create collaborative spaces that better support physician-patient communication, enhance patient understanding, and improve health literacy.

Keywords: Communication, health literacy, multimodal, Distributed Cognition.

1 Introduction

Health literacy is a key element of patient-centered health care that involves encouraging patients to take a more active role in understanding and managing their medical care [1]. An important contributor to health literacy is the communication that occurs between the physician and the patient [2].

In contrast to research in medical areas based on classical models of cognition, which focus primarily on the properties of single individuals, our research builds on the theory of Distributed Cognition [3,4]. Communication is seen as an emergent property of a system, which comprises not only of individuals, but artifacts, technology, and the sociocultural worlds in which activity is situated [5].

This exploratory pilot study investigates communication within the exam room of a local clinic serving LEP patients who often require interpreters. We explore the role
of artifacts, interpreters, and the seating arrangement in communication. By highlighting ways in which communication is unsupported, our analysis can inform a redesign of the exam room to better support physician-patient communication and improve health literacy.

2 Methods

We collected data at a local community health center that provides comprehensive medical care for low income and multi-ethnic patient populations. The clinic provides interpreters in 8 languages to support physician-patient communication. EMRs have been used for all patient encounters since May 2010. The EMRs store patient medical history, and provide functions for note taking, preventative care, prescriptions, etc.

Two Microsoft Kinects were used to record multimodal data (body position, directional audio, video, depth-imaging) during medical exam sessions. We recorded visits with 12 consented adult patients (7 female, 5 male, half requiring an interpreter). Session lengths varied from approximately 5 to 13 minutes. The physician used a pause button to stop recording during physical exams.

To organize and analyze these data we employed the ChronoViz data analysis suite [6]. A group of 5 researchers analyzed the data from the 12 sessions, focusing on the general structure of each session and patterns of interaction. Two sessions (one English-fluent and one LEP) were selected for detailed analysis, which involved coding across the session for multiple modalities (head, body, hands, speech).

3 Analysis

The exam room system is a complex multiparty multimodal system. In our study, the physician sat in a rolling swivel chair side-by-side with patients seated on the edge of the exam table. When an interpreter was present, he/she sat across from the patient in a chair. The EMR rests on a mobile platform, positioned directly in front of the physician. In the following sections, we enumerate examples of emergent communication pathways, and ways in which the communication is supported or not.

3.1 Physician-Patient Interaction with EMR

The physician often references the EMR and moves it to be more accessible to the patient. In one instance, the physician asks the patient whether she remembered a recent blood test. The physician rotates the screen towards the patient and uses her index finger to highlight a test result on the screen. The patient puts on her glasses and leans closer to the screen (Fig. 1 a). This example shows the EMR serving as a material anchor where information is referenced by both the physician and patient.

Later in the session, we see the same patient making use of the EMR to highlight something on the screen for the physician. While the physician is speaking with the patient about the medications she is taking, the patient leans forward, reaches out with