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Xiaoyan Liu

Mary Jones

Russell Torres

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AN INVESTIGATION OF COMPUTERIZED PHYSICIAN ORDER ENTRY SYSTEM

USING ACTIVITY THEORY

Xiaoyan Liu

McNeese State University
xliu3@mcneese.edu

Mary C. Jones

University of North Texas
mary.jones@unt.edu

Russell Torres

University of North Texas
russell.torres@unt.edu

ABSTRACT

A computerized physician order entry (CPOE) system refers to a type of health information technology used primarily in hospitals and designed for health care professionals to enter medical instructions and orders directly through a digital interface of a computer-based system instead of through word processor documents or paper charts (Khanna and Yen, 2014). Although the implementation of a CPOE system can bring many benefits such as medical error reduction and patient care quality improvement, problems may arise when physicians utilize a CPOE system. For example, physicians may perceive that it takes a long time to enter data into the system, or that the user interface is too complex (Yui et al., 2012). In addition, software and hardware issues such as accessibility, timeliness, reliability, integration, and flexibility may have an impact on health care professionals' perceptions of CPOE (Yui et al., 2012; Wixom and Todd, 2005). These issues may indicate the existence of misalignments between CPOE use and individual or organizational expectations, known in the parlance of activity theory as contradictions. It is important to understand and address the contradictions because although CPOE offers great promise, the benefits of CPOE are often not fully realized due to the contradictions related to its use.

Activity theory, originally proposed by Engeström (1987), is a socio-technical theory which has been used to provide insights into a variety of application challenges in the IS domain. It is regarded as a framework to improve and enhance the design practices in human-computer interaction fields. Contradictions, a type of misalignment among elements, are also regarded as the driving forces of change in an activity system (Kuutti, 1996). Activity theory is multidisciplinary and can be employed to analyze interrelationships among multiple stakeholders. Hence, we draw on the rich and robust lens of activity theory to explore the contradictions related to the use of CPOE.

In this study, we will adopt a mixed research method to explore two research questions. One is what is the impact of contradictions on system use and system benefits? Another is how do health care professionals address contradictions in their work routine? We adopt a snowball sampling method to collect the data. One of the authors is using her PUMC (Peking Union Medical College) alumni who work in hospitals and clinics in the United States to begin the data collection and obtain additional contacts. Our goal is to reveal and evaluate such contradictions, identifying which type of contradictions are of the most concerned, and further provide practical insights for vendors and health care professionals in the United States.

Keywords

Computerized Physician Order Entry System, CPOE, Activity Theory, Contradictions

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