

Chapter 1

Review of Web-Based Research in Health Care for Georgia: Telemedicine, eHealth, and e-Institutional Review Boards

Joseph C. Wood
Medical Ft. Gordon, USA

Elena A. Wood
Georgia Regents University, USA

Kim Marcille Romaner
Possibilities Amplified, Inc., USA

Fjorentina Angjellari-Dajci
Rochester Institute of Technology (RIT), USA

Max E. Stachura
Georgia Regents University, USA

LeeAnn Kung
Auburn University, USA

William F. Lawless
Paine College, USA

ABSTRACT

Information and Communication Technology (ICT) has become distinguished from Information Technology in that ICT extends specifically beyond technology to its use with critical organizational skills, the skills across a market segment, or across a system of organizations. In this chapter, the authors begin to apply social interdependence theory to their interest in the technologies and techniques that increase both knowledge and social welfare (e.g., ICT), in particular the application of metrics to organizational performance. In this chapter, they address ICT in our research as it is applied to Telemedicine, eHealth, and e-Institutional Review Boards (eIRBs) for healthcare in Georgia.

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INTRODUCTION AND BACKGROUND

ICT must be complemented with new technology-based solutions for providing health and social services but also with more cost-efficient approaches. Technology in isolation is not the solution to improved health care, especially when addressing an organizational or system approach. However, only recently have we come to accept that our knowledge of organizations and systems is unsatisfactory (e.g., Pfeffer & Fong, 2005). As a result, a new approach is being sought with social interdependence, one of the key characteristic of organizations (Jasny et al., 2009).

In this paper, we review why a new approach to organizations is needed. Our ultimate goal is to develop a full mathematical theory of interdependence. With this theory, we will not only be able to apply interdependence theory to ICT, but to any organization. What is original in our approach is the guidance it provides to practitioners for the development of metrics of organizational performance. In this paper, we put aside the mathematics for now, sketch the important elements of our new approach, and we begin to apply it to ICT.

Pfeffer and Fong (2005) argue that traditional organizational science has failed. It is established that individuals do not multitask well (Wickens, 1992). But multi-tasking is the function of organizations (Ambrose, 2001). It has been argued that the future of innovation within organizations lies in hybrid organizations comprised of arbitrary mixes of humans, machines and robots (Lawless et al., 2010). Research is already directed at preparing for its arrival. "... autonomy is required because one [person] cannot control several robots ... [and] because no computational system can discriminate ..." between life and death situations (Sharkey, 2008). It will not be possible to engineer hybrid organizations for many years, including the life and death decisions made during health care, without modeling the interdependence common to organizations (Smith & Tushman, 2005). But while we know more about individuals, we have

not yet learned how to aggregate data about individuals to form satisfactory models of groups (Bonito et al., 2010). This deficiency is one of the great challenges in social sciences (Giles, 2011).

Static interdependence was first studied in game theory (Von Neumann et Morgenstern, 1953), but today, game results are unsatisfactory because of the normative nature of game theory research (Schweitzer et al., 2009). As an example of the use of norms in science, Acemoglu and Jackson (2011) speculated that social welfare was proportional to the collective actions of a society, leading them to assume for toy game models that "High" actions can be thought of as more "cooperative" (p. 2), and therefore collective and superior. In contrast, we have found empirically that the more competitive is a nation (Lawless et al., 2010), the better its social welfare. Instead of using normative beliefs, we pursue a theory of interdependence based on a model of social bistability.

When attempting to get at the heart of the cultural keys to organizational success, such as that defined by very fast revenue growth, or long term stability, we find that classical models based on independent data (e.g., Kenny et al., 1998) used to extract data about the humans within the organization are satisfactory for replications but unsatisfactory for determining the dynamics of organizations. Humans are interdependent (social) organisms.

A single set of classical images cannot be fully described (Lawless et al., 2011). In contrast, human affairs can best illustrated by the bistable information provided to a jury by a prosecutor and a defense attorney (Freer & Purdue, 1996). That is why we have applied the bistable model to social interdependence to model social agreement and disagreement in politics; science; and the theater. Humans think in classical images that correspond to what they believe is physical reality, which occurs under social agreement. But during a disagreement, no single image of social reality captures it. Instead, neutral observers to a

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