Book Review:

Adaptive Health Management Information Systems 4th Edition

Michael Hall, Roger Williams University, USA

INTRODUCTION

The field of health administration has been developing and growing since the later 20th Century. In the 21st century, the field has developed a literature base, an academic discipline, and a new set of professionals. The academics include certificate programs, courses within MPA and MBA programs, training programs, and free-standing degree programs. With degrees in health administration has come medical practice management. All of this refinement and growth is because of the need for health care/healthcare administrators to solve problems, be creative and innovative with solutions, perform data gathering, conduct data analysis, and be in a mindset to form the data into information. All of this work is computational thinking. Computational thinking was originally developed to educate students to become coding experts in computer software. Nonetheless, other academic disciplines have adopted computational thinking coursework and the needed skills to accompany it. Now come two new books which create a foundational element for computational thinking in health informatics and healthcare/health care delivery. They are *Adaptive* Management Information Systems and Digital Health Care: Perspectives, Applications, and Cases. These two volumes provide the descriptions, illustrations, and examples of using digital approaches to manage healthcare/health care.

The field of informatics began in the late 20th Century also. Informatics and health administration are now intertwined in increasing numbers of ways and intertiwing is growing, one might even say, exponentially since the origination of both fields in the 1960s. Informatics was once a singular academic displine focused on studying information structures and related areas. Since its beginning informatics has generated other academic and professional disciplines including health informatics, nursing informatics, electronic patient records, and related areas of health information. Even research science fields have added an informatics component as in bioinformatics. The field has grown in such a way as to create a new profession: informationist.

Professionals in academics, research, administration, and informationists must be developed and educated along with allied health professionals. Joseph Tan has provided a resource to develop that knowledge for informationists and others who need to know about how to develop, understand, use, and develop evidence-based decisions. Dr. Tan is well suited to the task of generating such a book with informatics and e-health content since he is a professor experienced in teaching and publishing about electronic health issues, business technological applications, and information systems at the McMaster University DeGroote School of Business. Dr. Tan has developed a platform for the needed understanding of how to use information in the field of health informatics with his book *Adaptive* Health Management Information Systems: Concepts, Cases, and Practical Applications. He and his fellow author, Phillip Olla, perform a similar task in their collaboration Digital Health Care. They have generated these two books to provide explanation, illustrations, and examples of the tools used for computational thinking.

Adaptive in the title is critical to the learning from the singularly authored book's content. Adaptation will be needed continually when an MIS is in place. Data analysis, information, and evidence-based applications, in medical, administrative, and management ways will be required if an MIS is used to its full potential. Complex leadership theory reasons that no one person can know enough to address the internal and external issues with which an organization must contend. An MIS structure, when developed in the way Dr. Tan's book chapters outline.

STRENGTHS

The first strength is the current book is in its 4th Edition. The lifespan of such a book is representative of how the fields of health administration and informatics has changed and Dr. Tan's recognition of same in order to continue to keep readers and learners abreast of the rapid changes in the field.

A second strength is Dr. Tan's understanding that data and informatics are the bedrock of evidenced based decision and must be approach ultimately as not just a database or a spreadsheet but a full linkage of all databases in a health organization to allow for the data to be informative and accessible. The very first chapter elucidates this point.

Another strength would be the organization of the chapters and their content which follows. He builds his chapters with the logical start of the technology available plus its uses and then moves to chapters with application contexts. This approach cannot be undervalued. The new student in a health administration class can begin to understand the structure and function of informatics and information technology before moving into databases, their construction, their operation, and the other technological areas such a student would need to understand. It is also worth noting that the structure of the book would be useful even for those currently in health care administration or students of the field of health informatics The logic of the chapter structure would also be a boost to physicians turned administrators in hospitals or insurance companies.

The focus on learning is also shown by the use of study questions and case studies. These exercises get to the heart of learning about a field whose professional outcome is informed practitioners. Dr. Tan exhibits an understanding of the background of digital information and it attendant technology, but he also recognizes the final result is to produce people who can use them. Dr. Tan's book lays down some important "mile markers" in moving along the informatics and MIS learning road.

Dr. Tan and his collaborators illustrate the use of electronic and digital information for physician applications and patient health. The growth of both electronic patient records and are not art.

Importantly, Dr. Tan adds informatics to the areas of study in his book. Chapter 7, for example, Pharmacy Informatics, is clearly an example of the direction the informatics field has advanced to and how pharmacy informatics has added to the repository of information tools to be included in an adaptive HMIS.

The cases studies of the book add to its usefulness for learners and educators. Case studies allow for deeper thinking about the book's material and move toward the idea of how to use what is

being presented in chapter form. The policy and technology coverage areas are also relatively unique adjuncts to the areas learners can use for even more reflection on using the information in the text.

LOOKING TO THE FUTURE

Dr. Tan's book is strong and purposeful on its own merits. The book is usefully organized, composed of contemporary and important content, and provides learning structures beyond reading. It is in this area, this reviewer would propose to strengthen further what the book provides. The additions would be some listing and/or discussion concerning the competencies and skills needed for effective use of an HMIS plus some direction toward organizational culture becoming adaptive and open to change. Such culture, by the way, would need to be guided by enlightened leadership like those described by Complex Leadership Theory.

The additions of the of competencies and skills for HMIS and/or adaptive skills for embedding adaptive abilities needed for using them could be listed in the case studies. The case studies are learning frameworks intended to generate deeper thinking based on the book content. They could be added in an introduction to the case. The same could also be added to the policy reviews.

Importantly, the competencies must be understood as broad categories derived from learning in order to be successfully deployed. The experience and training elements of competence cannot be generated from a textbook alone. A textbook, like *Adaptive* Health Management Information Systems could be an excellent guide to building training for HMIS users. Knowledge would come from the already strong content of Dr. Tan's book.

Skill is produced by practice. Case studies, when conscientiously utilized in a class or training, can be a form of cognitive practice leading to self-efficacy or belief in the ability to use what is practiced in the case study form. Self-efficacy is the affective domain of skill. Self-efficacy developed in this way would be a form of computational thinking. Computational thinking is composed of problem solving, pattern recognition, creativity added to these first two constituent parts of computational thinking, and data analysis. Dr. Tan's cases and policy reviews are the book's elements which can generate computational thinking so needed in HMIS work.

Schools around the nation teach computational thinking in hopes of creating coding skills for software engineering. Vanderbilt University holds a summer "camp" aimed at the same area. What is also required is how to use software skills in HMIS structures. HMIS structures involve people not simply 0 and 1 coding ability. The Tan book points the way toward the development of application skills for HMIS to accompany software applications. Chapters 5 and 6, plus Policy Review III in Part 2, introduce key people issues. His authors' Chapter 7 includes a section on professional education needed for informatics use. In Part 3 Policy Review III goes to the heart of learning material necessary for leaders in *Adaptive* healthcare organizations to use in working with HMIS. The case studies with competencies to induce self-efficacy listed prior to the case and asked about in study questions would make the book even more robust.