Notice of the Final Oral Examination
for the Degree of Master of Science

of

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BSc (National Defense University, Taiwan 1988)
MSc (National Defense University, Taiwan, 1990)
MSc (Washington University in St. Louis, 2001)
PhD (Washington University in St. Louis, 2002)

"Risk Assessment of Technology-Induced Errors in Health Care"

School of Health Information Science

Monday, April 18, 2016
9:30AM
Human and Social Development Building
Room A202

<u>Supervisory Committee:</u>
Dr. Andre Kushniruk, School of Health Information Science, University of Victoria (Supervisor)
Dr. Elizabeth Borycki, School of Health Information Science, UVic (Member)

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Dr. Alexander Thomo, Department of Computer Science, UVic

<u>Chair of Oral Examination:</u>
Dr. Hossein Nassaji, Department of Linguistics, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies

Abstract

This study demonstrates that hybrid methods can be used for measuring the risk severity of technology-induced errors (TIE) that result from use of health information technology (HIT).

Objectives:
The objectives of this research study include:
1. Developing an integrated conceptual risk assessment model to measure the risk severity of technology-induced errors.

2. Analyzing the criticality and risk thresholds associated with TIE's contributing factors.

3. Developing a computer-based simulation model that could be used to undertake various simulations of TIE's problems and validate the results.

Methods:
Using data from published papers describing three sample problems related to usability and technology-induced errors, hybrid methods were developed for assessing the risk severity and thresholds under various simulated conditions.

Results:
A risk assessment model (RAM) and its corresponding steps were developed. A computer-based simulation of risk assessment using the model was also developed, and several runs of the simulation were carried out. The model was tested and found to be valid.

Conclusion:
Based on assumptions and published statistics obtained by publically available databases, we measured the risk severity and analyzed its criticality to classify risks of contributing factors into four different classes. The simulation results validated the efficiency and efficacy of the proposed methods with the sample problems.