2006

The development of a spatial technical writing technique: the application of concept mapping and sentence diagramming

Hung Manh Ha
University of Wollongong

The Development of a Spatial Technical Writing technique: the application of Concept Mapping and Sentence Diagramming

A thesis submitted in partial fulfilment of
the requirements for the award of the degree

MASTER OF INFORMATION SYSTEMS BY RESEARCH

from

UNIVERSITY OF WOLLONGONG

by

HUNG MANH HA
BEcon, GDipIS

SCHOOL OF ECONOMICS & INFORMATION SYSTEMS

2006

CERTIFICATION

I, Hung Manh Ha, declare that this thesis, submitted in partial fulfilment of the requirements for the award of Master of Information Systems by Research, in School of Economics & Information Systems, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Hung Manh Ha

16 October 2006

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

Abbreviation	Full Name
STW	Spatial technical writing
STD	Spatial technical document
IV	Independent variable
DV	Dependent variable
S	Subject
SD	Standard deviation
L	Frequency of the less frequent sign
T	Total frequency of both pluses and minuses
p	Probability of by chance obtaining L out of T

ABSTRACT

In today's era of dynamic information technology, technical documents are becoming bigger and are updated more frequently than ever before. As a result, people have to spend a huge amount of time and efforts to digest these technical documents. At present, traditional technical writing uses word-after-word narrative writing to produce technical documents. The resulting narrative document often has language ambiguity and an inefficient concept manipulation problem which can cause a lot of difficulty for readers. In this thesis, it is proposed that concept mapping and sentence diagramming are two techniques that have the potential to effectively solve the inefficient concept manipulation and the structural language ambiguity problems of natural language narrative.

The purpose of this research is therefore to offer a solution to the language ambiguity and inefficient concept manipulation problem existing in the traditional narrative technical documents. Specifically, it seeks to answer the question: is it possible to create a new technical writing technique that has its structure similar to the sentence diagramming technique, but is simpler for readers to understand, and can help readers to efficiently manipulate concepts in a text in a manner similar to that of a concept map?

A developmental research method approach was adopted. The research was conducted in two phrases. The first phrase was to develop a new and more effective technical writing technique called 'spatial technical writing' (STW) based on concept mapping and sentence diagramming techniques. The second phrase was to conduct a small exploratory study using students to compare the STW technique with traditional

narrative. The exploratory study used a small pilot experiment with basic quantitative and qualitative measurements.

The quantitative result showed that students achieved a slightly higher mark on comprehension of the narrative text test than the spatial text test. The probability analysis showed that the pilot experiment was not significant. The qualitative result revealed that the main reason that students did not do as well on the spatial text test was because they did not thoroughly understand the STW symbols used in the pilot experiment. Due to the lack of an experimental budget; the pilot experiment couldn't test all STW symbols, and the students didn't receive enough training to understand STW sufficiently. These two confounding variables distorted the pilot experiment and made the results of pilot experiment inconclusive. However there was enough encouragement to continue the research. The result of this pilot experiment will be used to refine the STW technique, and to plan a full-scale experiment in the future.

Finally, the implication of this research is that; if the Internet based STW software is developed, it can help people to digest technical knowledge in ashorter time and with less effort than traditional narrative.

ACKNOWLEDGEMENTS

I would like to acknowledge the guidance, support and encouragement I received from my principal supervisor Prof. Helen Hasan and my co-supervisor Dr. Zhaohao Sun.

I would like to deeply thank Prof. Helen Hasan who gave me a very correct orientation for my research. Without the support of Helen, I could not finish this thesis.

I also would like to thank a lot Dr. Zhaohao Sun who carefully justifies the detailed information in my thesis. Many of his suggestion were very useful for my thesis.

I also would like to thank the students who attended in my experiment for this thesis. Without the help of these students, I could not finish the research method section which is a very important part in my thesis.

Finally, I would like to thank my parents and my family who strongly believed me, and gave me a lot of financial assistance during my research time.