



Extended User Experience For Data Entry Process In The ERP Systems

G D M Perera
(Reg. No. : MS17906340)
M.Sc. in IT

Specialized in Enterprise Applications Development

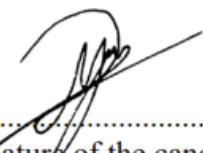
Supervisor: Dr. Shyam Reyal

May 2021

**Department of Information Technology
Faculty of Graduate Studies and Research
Sri Lanka Institute of Information Technology**

Declaration

I hereby declare that this dissertation is solely composed by me and to the best of my knowledge it does not contain any materials previously published or written by another person, or material that have been accepted for the award of any academic qualification of a university or institute of higher learning, except where due acknowledgement is made in the text.



Signature of the candidate

21/08/2021

Date

The above candidate has carried out research for the M.Sc. thesis under my supervision.

Name of Supervisor : Dr. Shyam Reyal

Signature : 

Date : 06/09/2021

Table of Contents

Table of Contents	ii
List of Figures	vi
List of Tables	vii
Chapter 1 Introduction	8
1.1 Introduction to the chapter.....	8
1.2 Background.....	8
1.2.1 Emergence of ERP systems	8
1.2.2 Human-computer interaction	9
1.2.3 User Interface	10
1.2.4 Design Thinking	10
1.3 Scope	11
1.4 Problem Statement (Definition).....	11
1.5 Research Objectives	12
1.5.1 Research Question	12
1.5.2 General Objective	12
1.5.3 Specific Objectives	13
1.6 Significance of the study.....	13
Chapter 2 Literature Review	15
2.1 Introduction to the chapter.....	15
2.2 ERP Systems	15
2.3 Evolution of ERP	15
2.3.1 MRP	16
2.3.2 Closed-loop MRP Systems	17
2.3.3 MRP II Systems.....	17
2.3.4 ERP Systems.....	17
2.4 ERP Architecture	20
2.5 Enterprise Resource Planning Systems Characteristics.....	21
2.5.1 Enterprise Resource Planning Systems Integration.....	21
2.5.2 Best Practice	21
2.6 Enterprise Resource Planning Systems Benefits	22
2.6.1 Focused and fixed IT costs	22
2.6.2 Visibility	22
2.6.3 Improved reporting and planning	23

2.6.4 Increased Productivity	23
2.6.5 Data Quality and Security.....	23
2.6.6 Collaboration and Workflow Improvements	24
2.6.7 Standardized Business Processes.....	24
2.6.8 Precision in forecasting	24
2.6.9 Exceptional Scalability	25
2.7 Enterprise Resource Planning Systems disadvantages/Issues	25
2.7.1 The cost.....	25
2.7.2 Implementation and maintenance costs	26
2.7.3 Process of Customization	26
2.7.4 Complexity	26
2.8 ERP and risk factors	26
2.8.1 Organizational Fit	27
2.8.2 Skill Mix	27
2.8.3 Management Structure and Strategy.....	27
2.8.4 Software Systems Design	27
2.8.5 User engagement and training	28
2.8.6 Technology planning	28
2.8.7 Project Management.....	28
2.8.8 Social commitment.....	28
2.9 Factors to consider prior to implementing an ERP system	29
2.9.1 ERP Fit	29
2.9.2 Risk Management and contingency planning.....	29
2.9.3 User Education and training	30
2.10 User Experience and its impact on the success of an ERP implementation	31
2.11 Technology Acceptance Model (TAM) to assess the success of an ERP system.....	32
2.12 Design thinking process in ERP systems	33
2.13 Design Thinking and steps involved	35
2.13.1 Empathize	36
2.13.2 Define	36
2.13.3 Ideate	36
2.13.4 Prototype.....	37
2.13.5 Test	37

Chapter 3 Methodology	39
3.1 Introduction to the chapter.....	39
3.2 Design.....	39
3.3 Conceptual framework	40
3.3.1 Phase I - Collecting data from the current ERP users	41
3.3.2 Phase II – Design thinking process.....	41
3.3.3 Phase III – Implementing prototype 2	46
3.4 Participants	49
3.4.1 Phase I.....	49
3.4.2 Phase II	49
3.4.3 Phase III.....	49
3.5 Sampling method	49
3.6 Data Collection.....	49
3.7 Materials	50
3.8 Procedure	51
3.9 Data Analysis	52
Chapter 4 Results	53
4.1 Introduction to the chapter.....	53
4.2 Pre test.....	53
4.3 Phase I	58
4.3.1 Main Analyses	60
4.3.2 Additional Analyses	61
4.4 Phase II.....	62
4.5 Phase III	74
Chapter 5 Discussion	83
5.1 Introduction to the chapter.....	83
5.2 Phase I	83
5.3 Phase II.....	84
5.4 Phase III	87
Chapter 6 Conclusion.....	91
6.1 Introduction to the chapter.....	91
6.2 Conclusion	91
6.3 Limitations of the present study.....	93
6.4 Recommendations for future research	93

References.....	94
Appendix.....	103
Appendix 1: Pre-test	103
Appendix 2: Questionnaire	107

List of Figures

Figure 2-1 Design Thinking Process.....	38
Figure 3-1 Conceptual Framework	40
Figure 3-2 Prototype 1	45
Figure 3-3 Prototype 2	45
Figure 4-1 Type of User.....	59

List of Tables

Table 4-1 Internal consistency	53
Table 4-2 Item-Total Statistics.....	54
Table 4-3 Reliability statistics	56
Table 4-4 Item-Total Statistics.....	56
Table 4-5 Gender Frequency	59
Table 4-6 Co-relationship between Total score of Perceived Ease of use and Perceived usefulness .	60
Table 4-7 Co-relationship between satisfaction of ERP and Perceived Ease of use	60
Table 4-8 Co-relationship between satisfaction of ERP and perceived usefulness	61
Table 4-9 Themes defined according to the focus group discussions (Phase II).....	69
Table 4-10 Themes defined according to the focus group discussions (Phase III)	78