

**EFFECT OF SOCIAL MEDIA USE ON FAMILY
CONNECTEDNESS OF SCHOOL CHILDREN IN
COLOMBO DISTRICT USING STRUCTURAL
EQUATION MODELLING APPROACH**

Kumara Wickramasinghe Lihini Kanchana Karunarathne

(178132J)

**Dissertation submitted in fulfilment of the requirements for the
degree Master of Science in Operational Research**

Department of Mathematics

University of Moratuwa

Sri Lanka

March 2023

DECLARATION OF THE CANDIDATE

I declare that this is my own work and this dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

Also, I hereby grant to the University of Moratuwa the non-exclusive right to reproduce and distribute my dissertation, in whole or in part in print, electronic or other mediums. I retain the right to use this content in whole or part in future works.

Signature of Candidate:

Date: 01/08/2023

Kumara Wickramasinghe Lihini Kanchana Karunaratne

DECLARATION OF THE SUPERVISOR

The above candidate has carried out research for the Masters Dissertation under my supervision.

Signature:

Date:

Senior Lecturer Dr. P.M. Edirisinghe

ABSTRACT

This study investigates the effect of social media use for family connectedness of school children in Colombo district. Social media refers to online platforms and tools that facilitate the creation, sharing, and exchange of information, ideas, content, and interaction among users. Social media has grown exponentially over the past decade, becoming an integral part of everyday life for billions of people around the world. Consequently, Children are spending more time on social media than ever before. Social media can lead to isolation and less face-to-face communication, leading to decreased family connectedness. The research was conducted using a questionnaire-based survey that collected primary data from 310 of school children in Grade 6 to Grade 13 in Colombo District. As the study is based on a conceptual model that the researcher has developed, structural equation modelling (SEM) was employed. Findings showed that ease of use with new technologies significantly affect social media use, which further affect family connectivity. Consequently, as the proposed model in this study illustrates, it can be concluded that Social media use has a considerable negative impact on family connectedness of school children. It is also recommended that awareness is created about the detrimental effects of social media usage on family connectedness of school children and interventions are introduced to improve family relationship.

Key words: Family Connectedness, Social media use, Structural equation modelling, Behavioural intention, Perceived ease of use

ACKNOWLEDGMENTS

I would like to express my sincere gratitude to all those who have contributed to the successful completion of this research report.

Firstly, I would like to thank my supervisor, Senior Lecturer Dr. P.M. Edirisinghe, Faculty of Engineering, University of Moratuwa, for his invaluable guidance and support throughout the research process. Their expertise and encouragement have been instrumental in shaping this report.

I am also grateful to academic and the non-academic staff of the Faculty of Engineering, University of Moratuwa, for providing me with the necessary resources and facilities to conduct this research. The insights and feedback received from Faculty of Engineering, University of Moratuwa, were immensely helpful in refining the research.

I would like to extend my appreciation to the participants who generously gave their time and shared their experiences with me. Their insights and perspectives have been invaluable in shaping the findings of this report.

Furthermore, I would like to thank my family and friends for their unwavering support and encouragement throughout this research journey. Their belief in me has been a constant source of motivation.

Lastly, I would like to acknowledge the contributions of all those who have helped me in any capacity during the research process. Their assistance, no matter how small, has been deeply appreciated.

Thank you all for your support and encouragement.

TABLE OF CONTENTS

DECLARATION OF THE CANDIDATE	ii
DECLARATION OF THE SUPERVISOR	ii
ABSTRACT	iii
ACKNOWLEDGMENTS	iv
TABLE OF CONTENTS	v
CHAPTER 01	1
INTRODUCTION	1
1.1 Chapter Overview	1
1.2 Background	1
1.3 Framing the research problem	3
1.4 Research question	4
1.5 Research Objectives	4
1.6 Research focus and limitations	4
1.7 Research approach and method	5
1.8 Thesis chapter structure	6
CHAPTER 02	8
LITERATURE REVIEW	8
2.1 Chapter Overview	8
2.2 The Family	8
2.3 Family Connectedness	9
2.4 The Internet and Social Media	11
2.5 Social Media and Families	12
2.6 Structural Equation Modelling/ Social Media/ Family Connectedness	13
2.7 Research framework	14
2.7.1 Research model	15
2.7.2 Hypotheses	16
Behavioral Intention to use Social Networks (BI)	16
Perceived ease of use with new technologies (PEOU)	17
Social Media Usage (SMU)	18
CHAPTER 03	21
METHODOLOGY	21
3.1 Chapter Overview	21
3.2 Research Design	21
3.2.1 Explanation of the Quantitative Approach	21
3.3 Study Design	22
3.4 Population	22
3.5 Sample	23
3.6 Research Hypothesis	23
3.7 Instruments	24
3.8 Definition of Variables	24
3.8.1 Behavioural Intention to use Social media	24
3.8.2 Perceived Ease of Use with new technologies	25
3.8.3 Social Media Usage	25

3.8.4 Family connectedness.....	25
3.9 The Purpose of the Survey Method	26
3.9.1 Data Collection	26
3.10 Data Analysis Procedures	26
3.10.1 Data Entry	26
3.10.2 Data Cleaning	27
3.10.3 Structural Equation Modelling	27
3.10.3.1 Measurement Model	31
3.10.3.1.1 Model Fit	31
3.10.3.1.1 Model Chi-Square Test.....	31
3.10.3.1.2 Comparative Fit Indices (CFI).....	32
3.10.3.1.3 Incremental Fit Index (IFI)	32
3.10.3.1.4 Normed Fit Index (NFI)	32
3.10.3.1.5 Tucker Lewis Index (TLI)	32
3.10.3.1.6 Root Mean Square Error of Approximation (RMSEA).....	32
3.10.3.1.2 Construct Reliability.....	34
3.10.3.1.2.1 Cronbach's Alpha	35
3.10.3.1.2.2 Composite Reliability	36
3.10.3.1.3 Construct Validity.....	36
3.10.3.1.3.1 Convergent Validity	37
3.10.3.1.3.2 Discriminant Validity	38
3.10.3.1.3.2.1 Fornell & Larcker Criterion.....	39
3.10.3.1.3.2.2 Heterotrait-Monotrait Ratio	39
3.10.3.2 Structural Model	40
3.10.3.2.1 Full Structural Model Analysis.....	41
3.10.4 Rationale for the Use of SEM.....	42
3.10.5 Sample Size Recommendations for SEM.....	43
3.11 Ethics of Research	43
CHAPTER 04.....	45
DATA ANALYSIS	45
4.1 Overview	45
4.2 Introduction	45
4.3 Response Rate.....	45
4.4 Description of the Sample	45
4.4.1 Participants	45
4.4.2 Descriptive Statistics	46
4.5 Structural Equation Modelling Analysis	46
4.5.1 Measurement Model Analysis	47
4.5.2 Assessment of the measurement model.....	49
4.5.2.1 Assessing Model Fit	50
4.5.2.2 Reliability Assessment of the constructs	51
4.5.2.3 Validity Assessment of the constructs.....	52
4.5.2.3.1 Convergent validity	52
4.5.2.3.2 Discriminant validity	53
4.5.2 Structural Model Analysis	54
4.5.2.1 Assessment of structural model.....	55

4.5.2.2 Coefficient of determination -R ²	56
4.5.2.3 Test of the hypotheses - Path coefficient.....	57
CHAPTER 05.....	61
CONCLUSION AND RECOMMENDATIONS.....	61
5.1 Conclusion.....	61
5.2 Recommendations	62
5.3 Limitations.....	63
REFERENCES.....	64
APPENDICES.....	72
Appendix A Descriptive Statistics of Socio-demographics (N=310).....	72
Appendix B Convergent validity results which assures acceptable values (Factor loading, Cronbach's Alpha, composite reliability ≥ 0.70 & AVE > 0.5)......	73
Appendix C Questionnaire relies on survey measurement scale Cronbach's alpha.....	74
Appendix D Sample Questionnaire	76

List of Tables

Table 2. 1: Operational definition of variables and resources	16
Table 3. 1: Model Fit Index and Threshold Values	33
Table 4. 1: Model Fit Assessment.....	50
Table 4. 2: Reliability Assessment.....	51
Table 4. 3: Validity Assessment	53
Table 4. 4: Fornell-Larcker Scale.	54
Table 4. 5: R ² of the endogenous latent variables.....	57
Table 4. 6: Results of structural Model - Research Hypotheses.	58

List of Figures

Figure 2. 1: Research Model of the study	19
Figure 3. 1: Example SEM diagram	29
Figure 4. 1: Measurement Model of the study	48
Figure 4. 2: Structural Model of the study	55
Figure 4. 3: Path coefficient results with significant hypotheses.....	59