Learning Through Multimedia Interaction:

The Construal of Primary Social Science Knowledge in Web-based Digital Learning Materials

A thesis submitted in fulfilment of the requirements of the degree of Doctor of Philosophy

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Sumin Zhao

Faculty of Arts, the University of Sydney
Declaration

I hereby declare that this submission is my own word and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the qualification of any other degree or diploma of a University or other institution of higher learning, except where due acknowledgment is made in the text.

Sumin Zhao

Signature:

Date:
Abstract

This thesis is concerned with the construal and the recontextualisation of primary social science knowledge in hypermedia texts. More specifically, it provides an account for the relations between verbiage and image in web-based multimodal interactive leaning materials, known as Multimodal Interactives (MIs). Based on the linguistic description, the thesis offers insights into the ways in which knowledge is construed and recontextualised in the emerging electronic multimodal discourses.

The general theoretical orientation of this thesis is that of systemic functional multimodal discourse analysis (SF-MDA). Within the framework of SF-MDA, the thesis proposes a complementary perspective on intersemiosis, which treats relations between verbiage and image as patterns formed during the unfolding of a text. To capture this type of intersemiotic relations, the thesis develops a logogenetic model for SF-MDA. The defining feature the model is the temporal axis (time), which serves as the main reference point for determining semiotic units (logogenetic units) and describing semiotic patterns (logogenetic patterns).

The logogenetic model is applied in studying five MIs. The basic logogenetic unit used in analysis is Critical Path, the shortest traversal through a MI. Two types of logogenetic patterns along the Critical Paths in the five MIs are examined in detail, including intersemiotic ideational coupling and clustering. There are five basic types of verbiage-imaged coupling emerged from the analysis, including Naming & Identifying, Representing, Classifying & Co-classifying, and Circumstantiating. The analysis of ideational clustering shows the different ways in which participants and activities form clusters in each MI.

By analysing intersemiotic coupling and clustering, the thesis shows that language and image construe the keys notions of primary social science such as people, place and community through three fundamental principles—abstraction, generalisation and specification. The study also demonstrates the possibility of achieving different degrees of pedagogic framing in hypermedia environments.
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I almost wish I hadn’t gone down that rabbit-hole—and yet—and yet it’s rather curious, you know, this sort of life! I wonder what can have happened to me!
—Lewis Carroll
Alice in the Wonderland

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# Table of Contents

*Declaration*  
*Abstract*  
*Acknowledgements*  
*Table of Contents*  
*List of Tables*  
*List of Figures*  
*List of Plates*  
*List of Abbreviations*

## Chapter 1 Introduction

1. **Research background: Prelude**  
   1.1 **Research objectives and scope**  
   1.2 **Research rationale**  
      1.2.1 *Multimodal Discourse Analysis: A SFL perspective*  
      1.2.2 *Multiliteracies: The challenge of the new century*  
      1.2.3 *Text based approach to multimedia learning: A third voice*  
   1.3 **Research data: Multimedia Interactives (MIs)**  
      1.3.1 *Multimedia Interactives: What*  
      1.3.2 *Data selection criteria*  
      1.3.3 *Multimedia Interactives: Why*  
   1.4 **The organisation of the thesis**

## Chapter 2 Multimedia Interactives (MIs): Three perspectives

2. **Overview**  
   2.1 **Pedagogic discourse: View from above**  
      2.1.1 *Educational genres and Multimedia Interactive (MIs)*  
      2.1.1.1 *Genre: An overview*  
      2.1.1.2 *Elementary verbal genres in MIs*  
      2.1.1.3 *Macro schematic structure of MIs*  
      2.1.2 *Pedagogic discourse and Multimedia Interactives (MIs)*  
      2.1.2.1 *Pedagogic discourse: Regulative and instructional registers*  
      2.1.2.2 *Regulative and instructional registers in MIs*  
   2.1.3 *View from above: A short summary*  
   2.2 **Hypermodality: View from around**  
      2.2.1 *Hypermodality: An overview*  
      2.2.2 *Hypertextuality and Multimedia Interactives (MIs)*  
      2.2.2.1 *Unit, scale and relation in hypertext semantics: A literature review*
2.2.2.2 Multimedia Interactives (MIs): A case against hypertextuality? 55
2.2.3 Multimodality and Multimedia Interactive (MIs)
  2.2.3.1 Multimodality: Towards a working definition for intersemiosis 58
  2.2.3.2 Major intersemiotic models: A literature review 59
  2.2.3.3 Modelling intersemiotic relations in MIs: Challenges and solutions 62
2.2.4 View from around: A short summary 65

2.3 Digital hypermedia: View from below
  2.3.1 Beyond the page: Remediation and the digital hypermedia 66
    2.3.1.1 Remediation: An overview 66
    2.3.1.2 Hypermedia description in SF-MDA: The page metaphor 68
    2.3.1.3 Remediation in Multimedia Interactives (MIs): Towards a space metaphor 70
  2.3.2 Technology affordances and digital hypermedia: Anchors in MIs 76
    2.3.2.1 Perspectives on technology affordances: An overview 76
    2.3.2.2. Anchors in MIs: Affordances and semantic status 81
  2.3.3 View from below: A short summary 95

2.4 MIs as multisemiotic pedagogic discourse: Implications for a SFL-based descriptive model
  2.4.1 The three perspectives: A synopsis 96
  2.4.2 Implications for a SFL-based descriptive model 97

Chapter 3 Intersemiotic relations as logogenetic patterns: towards a time-based SF-MDA model
3.0 Overview 99
3.1 Systemic functional linguistic theory and multimodal discourse analysis 100
  3.1.1 Stratification, instantiation and metafunctions 101
    3.1.1.1 Stratification, instantiation and metafunctions: An overview 101
    3.1.1.2 Modelling context in SFL: Two approaches 105
    3.1.1.3 Field and ideational patterns: Strategies for incorporating stratification, instantiation and metafunctions 111
  3.1.2 Paradigm and syntagm 114
    3.1.2.1 Paradigm and syntagm: An overview 114
    3.1.2.2 Theorising text structure in SFL 117
    3.1.2.3 Beyond language: Structure in multimodal text 121
  3.1.3 Logogenesis 128
    3.1.3.1 Logogenesis: An overview 128
    3.1.3.2 Systemic dynamism: Theoretical and practical constraints 131
    3.1.3.3 Modelling logogenesis: A (multimodal) discourse analytical model 133
  3.1.4 SFL parameters and the logogenetic model: A summary 134
3.2 Intersemiotic relations as logogenetic patterns: Towards a time-based model for multimodal analysis 135
  3.2.1 Time 136
    3.2.1.1 Notions of time in SFL and SF-MDA 136
3.2.1.2 Time axis: Time as a modelling dimension  

3.2.2 Logogenetic unit  
3.2.2.1 Text as a constituency unit  
3.2.2.2 Text as a logogenetic unit  

3.2.3 Logogenetic patterns  
3.2.3.1 Reinterpreting paradigm and syntagm  
3.2.3.2 Sequencing  
3.2.3.3 Coupling  
3.2.3.4 Clustering  

3.2.4 Key notions in the logogenetic model: A summary  

3.3 From theory to practice: Applying the logogenetic model in analysing Multimedia Interactives  
3.3.1 Critical Path as a logogenetic unit  
3.3.1.1 Critical Path: What  
3.3.1.2 Critical Path: Why  

3.3.2 Data preparation: Coding Critical Path  
3.3.2.1. Coding Critical Path: Issues and solutions  
3.3.2.2 Critical Path in Gold Rush!: An illustration of the coding scheme  

3.4 Towards a time-based SF-MDA for intersemiosis: A Summary  

Chapter 4 Major types of verbiage-image ideational couplings In Multimedia Interactives: Construing communities and places in MIs  

4.0 Overview  

4.1 Recognising verbiage-image couplings in MIs: Theoretical and analytical principles  
4.1.1 The minimum mapping hypothesis  
4.1.2 Analytical treatments  
4.1.2.1 Unit  
4.1.2.2 Units in coupling and coupling complex  
4.1.2.3 Phoricity & Adjacency  
4.1.3 Principles for recognising verbiage-image couplings in MIs: A summary  

4.2 Ideational Inflation: Major types of verbiage-image ideational couplings in MIs  
4.2.1 Naming  
4.2.1.1 Naming: A definition  
4.2.1.2 Naming: People  
4.2.1.3 Naming: Places  
4.2.2 Identifying  
4.2.2.1 Identifying: A definition  
4.2.2.2 Identifying: People  
4.2.2.3 Identifying: Objects & places
4.2.3 Representing
  4.2.3.1 Representing: A definition
  4.2.3.2 Metonymising
  4.2.3.3 Metaphoring
4.2.4 Classifying-Exemplifying
  4.2.4.1 Classifying-Exemplifying: A definition
  4.2.4.2 Classifying-Exemplifying: Objects & people
  4.2.4.3 Classifying-Exemplifying: Process
4.2.5 Circumstantiating
4.2.6 Major types of verbiage-image couplings in MIs: A summary

4.3 Ideational couplings and local clustering: The multimodal construal of field
  4.3.1 Types of couplings and types of elementary verbal genres: An overview
  4.3.2 Verbiage-image coupling and local clustering: The multimodal construal of field in Biographical Recount
    4.3.2.1 Lexical relations in Biographical Recount: Realisations in verbiage
    4.3.2.2 Types of couplings: Re-locating Biographical Recount in multimodal environments
    4.3.2.3 Local clustering and the multimodal construal of field in Biographical Recount
4.4 People and places: Construing notions of community in MIs
  4.4.1 Overview
  4.4.2 Building community: Heroes and ordinary people
    4.4.2.1 Naming and Identifying community members: Differences in coupling
    4.4.2.2 Biographical Recounts of heroes and ordinary people: Differences in local clustering
    4.4.2.3 The ‘nameless’ members of the community and game characters
    4.4.2.4 The roles of heroes and ordinary people in the community
  4.4.3 Making sense of places: The social construal of space
    4.4.3.1 Iconic sites and key social institutions
    4.4.3.2 Social remapping of physical spaces: Maps in MIs
    4.4.3.3 The social construal of places in MIs: A summary
  4.4.4 Building community: A short summary
4.5 Verbiage-image couplings and the multimodal construal of field: A summary

Chapter 5 Classification and framing: The recontextualisation of primary social science knowledge in Multimedia Interactives
5.0 Overview
5.1 Classification and framing
  5.1.1 Classification and framing: An overview
  5.1.2 A review of SFL studies on classification and framing
5.2 Classification in Multimedia Interactives
  5.2.1 Weak classification between fields of knowledge
List of Tables

Table 1.1 A Summary of the MIs used in the thesis 19
Table 2.1 The macrostructure of product-oriented MIs: *New Homes* 40-1
Table 2.2 The macrostructure of mission-oriented MIs: *Gold Rush!* 43
Table 2.3 An overview of major intersemiotic models 60
Table 2.4 Major types of anchors in MIs: An overview 82-3
Table 2.5 Semiotic acts: An overview 83
Table 2.6 Navigation anchors in MIs 84
Table 2.7 Inspection anchors in MIs 86
Table 2.8 Semiotic Acts 93

Table 3.1 **APPRASIAL**: evaluative patterns along the lines of instantiation 110
Table 3.2 Instantiation, stratification, and metafunctions in the proposed model 111
Table 3.3 Types of structures and types of meaning: Lexico-grammar 117
Table 3.4 Types of structures: Discourse-semantics 119
Table 3.5 Two models of logogenesis: Discourse analysis & generation 133
Table 3.6 Segments from the coding scheme for the critical path in *Gold Rush!* 159-62
Table 3.7 Example of a frame: Frame 7 & 11 162
Table 3.8 Types of layers: Animated layers 163
Table 3.9 Types of layers: Still layers 164
Table 3.10 Types of transition 165
Table 3.11 Visual and text annotation: An example 166

Table 4.1 Verbal messages: Lexicalisation 178
Table 4.2 Visual messages: Participant & vector 179
Table 4.3 Simple couplings: Examples 180
Table 4.4 Couplings with one verbal message and several visual messages 180
Table 4.5 Coupling complexes: Examples 181-82
Table 4.6 Multimediality, multimodality and multisemiosis in MIs: Some examples 184-85
Table 4.7 Major types of verbiage-image ideational couplings 224
Table 4.8 Types of verbal elementary genre & types of verbiage-image couplings: A summary 226
Table 4.9 Lexical strings in Biographic Recount: Lilijia Brakmanis 228-229
Table 4.10 Multimodal environments of Biographic Recount: Lilija Brakmanis 230-32
Table 4.11 Verbiage-image couplings in Biographic Recount: Lilija Brakmanis 232-34
Table 4.12 Multimodal construal of heroes and ordinary people in MIs 254
Table 4.13 Multimodal construal of places in MIs 262

Table 5.1 Types of control and degrees of framing in the five MIs: A summary 310
List of Figures

Figure 2.1 History Genres: Typological and topological perspectives 28-29
Figure 2.2 Macrogenre of upper primary social science program 38
Figure 2.3 The Macrostructure of product-oriented MIs 39
Figure 2.4 The macrostructure of mission-oriented MIs 42
Figure 2.5 Reinterpreting intersemiotic relations 63
Figure 2.6 McGrenere & Ho’s model for technology affordances 78
Figure 2.7 Anchors in MIs: Technology affordances and semiotic potentials 81

Figure 3.1 A stratified model of language 101
Figure 3.2 Language and context: Connotative semiotics 102
Figure 3.3 Metafunctional diversification and contextual variables 103
Figure 3.4 Instantiation and stratification matrix 105
Figure 3.5 Register Model and Genre Model: A comparison in stratification and instantiation strategies 106
Figure 3.6 Genre Model: Stratified content 107
Figure 3.7 Register Model: Instantiation/Stratification Matrix 108
Figure 3.8 Genre Model: Instantiation strategy 109
Figure 3.9 Stratification strategies for the logogenetic model 112
Figure 3.10 Negotiation: An example of system network 115
Figure 3.11 Rank scale in English 116
Figure 3.12 The mapping of functional structures in a clause 118
Figure 3.13 A simplified mood system 126
Figure 3.14 Modelling conversation structure: An example 130
Figure 3.15 Ideational clustering patterns: An illustration 148
Figure 3.16 Critical Path as a logogenetic unit: A bi-stratal view 151
Figure 3.17 The comparison between a critical path and the longest possible traversal: Gold Rush! 152
Figure 3.18 New Homes: Critical Path 155
Figure 3.19 Existing models of intersemiosis and the logogenetic model: A summary 167

Figure 4.1 The minimum mapping hypothesis 170
Figure 4.2 Minimum mapping: A space metaphor 172
Figure 4.3 Minimum mapping: Field mapping and semantic integration 173
List of Plates

Plate 1.1 Mission-oriented MIs: *Gold Rush!* 15-6
Plate 1.2 Product-oriented MIs: *The First Golden Age of Cricket* 17-8

Plate 2.1. Elementary verbal genres in hypermedia environment: *New Homes* 36
Plate 2.2 *Gold Rush!*: Purchasing Cradle 44
Plate 2.3 *Gold Rush!*: The town of Ballard and the Tool Shop 56
Plate 2.4 Three Levels of hierarchy in *New Homes* 56
Plate 2.5 *Medical Emergency at Lonely Creek*: Where to go? 57
Plate 2.6 Remediation in product-oriented MIs 70-1
Plate 2.7 Remediation in mission-oriented MIs: *Gold Rush!* 73
Plate 2.8 Remediation in mission-oriented MIs: *Medical Emergency at Lonely Creek* 74
Plate 2.9 Semantic statuses of anchors in MIs: *Gold Rush!* 76
Plate 2.10 Technology affordance in MIs: Interface with audio clip 79
Plate 2.11 Navigation anchors: Entrance and Exit 85
Plate 2.12 Inspection anchors: Viewing 87-9
Plate 2.13 Scroll anchor 90
Plate 2.14 Control anchor 92
Plate 2.15 Semiotic Acts 93-4

Plate 3.1 Intersemiotic relations: Semantic interdependency and organic configuration 123
Plate 3.2 Critical Path in a product-oriented MI: *New Homes* 153-4

Plate 4.1 Minimum mapping: An example 174
Plate 4.2 Phoricity principle: An example 186
Plate 4.3 Phoricity in verbiage-image coupling: Personal pronoun 186
Plate 4.4 Spatial adjacency: Captions 187
Plate 4.5 Spatial adjacency: Within a layer or frame 187
Plate 4.6 Temporal adjacency: Between frames 188
Plate 4.7 Temporal adjacency: Coupling complex in moving images 189-90
Plate 4.8 Naming: An example 192
Plate 4.9 Naming: Types of named visual participants 193
Plate 4.10 Naming of places: Discrete and relational 195-96
Plate 4.11 Maps in hypermedia environments: Animated process of relational 198
<table>
<thead>
<tr>
<th>Plate</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.12</td>
<td>Maps in hypermedia environments: Interactive maps</td>
</tr>
<tr>
<td>4.13</td>
<td>Identifying: An example</td>
</tr>
<tr>
<td>4.14</td>
<td>Identifying: People</td>
</tr>
<tr>
<td>4.15</td>
<td>Identifying people: Social relations and roles</td>
</tr>
<tr>
<td>4.16</td>
<td>Identifying: Objects and locations</td>
</tr>
<tr>
<td>4.17</td>
<td>Relational Identifying of objects and places</td>
</tr>
<tr>
<td>4.18</td>
<td>Relational Naming and relational Identifying of places: a comparison</td>
</tr>
<tr>
<td>4.19</td>
<td>Representing: An example</td>
</tr>
<tr>
<td>4.20</td>
<td>Metonymising: Examples</td>
</tr>
<tr>
<td>4.21</td>
<td>Metonymising: Sound effects and image</td>
</tr>
<tr>
<td>4.22</td>
<td>Metaphoring: Examples</td>
</tr>
<tr>
<td>4.23</td>
<td>Classifying-Exemplifying: An example</td>
</tr>
<tr>
<td>4.24</td>
<td>Coclassifying-Exemplifying: An example</td>
</tr>
<tr>
<td>4.25</td>
<td>Classifying-Exemplifying clusters</td>
</tr>
<tr>
<td>4.26</td>
<td>Classifying-Exemplifying: Objects and people</td>
</tr>
<tr>
<td>4.27</td>
<td>Classifying-Exemplifying: Classification cluster</td>
</tr>
<tr>
<td>4.28</td>
<td>Classifying-Exemplifying: Process</td>
</tr>
<tr>
<td>4.29</td>
<td>Circumstanziating: An example</td>
</tr>
<tr>
<td>4.30</td>
<td>Types of community members</td>
</tr>
<tr>
<td>4.31</td>
<td>Images in Biographic Recount: Heroes</td>
</tr>
<tr>
<td>4.32</td>
<td>Images in Biographic Recount: Ordinary people</td>
</tr>
<tr>
<td>4.33</td>
<td>Unidentified and unnamed ordinary people</td>
</tr>
<tr>
<td>4.34</td>
<td>Ordinary community members act as game characters</td>
</tr>
<tr>
<td>4.35</td>
<td>Construing places in MI</td>
</tr>
<tr>
<td>4.36</td>
<td>Significant sites and locations in Australia</td>
</tr>
<tr>
<td>4.37</td>
<td>Places representing important social cultural institutions of Australia</td>
</tr>
<tr>
<td>4.38</td>
<td>Maps in MI: Geopolitical boundaries</td>
</tr>
<tr>
<td>4.39</td>
<td>Three different maps of Torres Strait Islands</td>
</tr>
<tr>
<td>4.40</td>
<td>Reconstructing historic process: Animated maps</td>
</tr>
<tr>
<td>5.1</td>
<td>Shallow taxonomy in MI: Classification &amp; composition</td>
</tr>
<tr>
<td>5.2</td>
<td>Field expansion through addition: Dentist Equipment and Lilija Brakmanis</td>
</tr>
<tr>
<td>5.3</td>
<td>Weak classification of activities: Medical Emergency at Lonely Creek</td>
</tr>
<tr>
<td>5.4</td>
<td>Internal evaluations of the performance in interactive task: Medical Emergency at Lonely Creek</td>
</tr>
<tr>
<td>5.5</td>
<td>Anchor manipulation in weakly framed MI: New Homes</td>
</tr>
</tbody>
</table>
Plate 5.6 Anchor manipulation in strongly framed MIs: Sequence control  291
Plate 5.7 Anchor manipulation in weakly framed MIs: Pacing control  293
Plate 5.8 Anchor Specification in weakly framed MIs: *Gold Rush!*  294
Plate 5.9 Anchor specification in strongly framed MIs: *Medical Emergency at Lonely Creek* 295
Plate 5.10 Strong framing: Combination of anchor manipulation and specification  296
Plate 5.11 Textual organisation in weakly classified MIs: *Gold Rush!*  298
Plate 5.12 Textual organisation in strongly framed MI: *Medical Emergency at Lonely Creek*  299
Plate 5.13 Web hierarchy and the framing of instructional register  301-02
Plate 5.14 Weak framing: Interpersonal evaluation at the end of the task  305-06
Plate 5.15 Strong framing: Frequent evaluation throughout the task  307-08
List of Abbreviations

ARC: Australian Research Council
FGAOC: The First Golden Age of Cricket
GR: Gold Rush!
GT: Genre Theory
HSIE: Human Society and Its Environment
ICT: Information and Communication Technology
MDA: Multimodal Discourse Analysis
MEALC: Medical Emergency at Lonely Creek
MIs: Multimedia Interacts
MOTSI: Mystery Object: Torres Strait Islands
NMA: National Museum of Australian
NH: New Homes
RST: Rhetoric Structure Theory
SFL: Systemic Functional Linguistics
SF-MDA: Systemic Functional Multimodal Discourse Analysis
SOSE: Study of Society and Environment
TIF: the Le@rning Federation