Methods of Understanding and Designing
For Mobile Communities

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Information Technology and Electrical Engineering (ITEE)

Ph.D. Thesis

July 2006
Statement of Originality

The work presented in the thesis is, to the best of my knowledge and belief, original and my own work, except as acknowledged in the text. The material has not been submitted, either in whole or in part, for a degree at this or any other university.

Few written works are entirely the product of one individual and this is certainly true for this thesis. I have had numerous colleagues and friends review my work, offer suggestions, recommend various books and papers, and co-author papers with me. My appreciation for these individuals’ contributions is expressed in more detail in the Acknowledgements section.

Much of the thesis, in particular the Discussion, Method and Discussion chapters, have benefited from the work of several of my co-authors. These include my advisor Dr. Stephen Viller, Associate Advisor Ian MacColl, and colleagues Dr. Nicola Bidwell and Roslyn Cooper. There are times in the thesis where I use the first person ‘I’ to refer to my work. Where possible I have indicated when work was jointly created, but in some cases the first person will obscure the assistance I have received. I was the primary author on all of the papers which I draw directly from, but my colleagues’ writing has contributed to this thesis. In most cases, the content was created by myself with additional ideas and revisions supplied by my co-authors. Some of the papers were published in refereed journals or conferences, and some are currently under review, or were published as un-refereed technical reports. The majority of the thesis derives from these papers, but there is a significant amount of new content as well. The papers which this thesis draws upon are listed in the List of Publications section below.
There are many people who have helped me reach my goal of completing a Ph.D. My family, Brian, Karen and Larry have provided assistance and advice along the way which made the journey much easier. Also thanks to my advisor Dr. Stephen Viller for his patience and support throughout. The advice of many friends and colleagues have been invaluable along the way. These include my co-advisor Ian MacColl, Dr. Jacob Burr, Dr. Andrew Axup, Jared Donovan, Marcus Foth, Dr. Keith Cheverst, Dr. Jesper Kjeldskov, Dr. Marcus Foth, Tim Cederman-Haysom, Brett Campbell, Jared Donovan, Clint Heyer and Ben McGarry. Special thanks to Dr. Nicola J. Bidwell, Yoko Akama, Alexandra Wee, and Penny Hagen for their fascinating design discussions. Also thank you to Karen and Zoe for taking the time to review this very large document.

My thanks also go to the people who assisted in the following studies:

**Hostel Interviews:** Palace Backpackers, Somewhere To Stay and The Bunk for use of their facilities, and anonymous backpackers for being willing to chat about their lives.

**MIS Study:** Dan Nicolau, Dave Nichols, Jason Shugg, Roslyn Cooper, Stacey Lamb of Palace Backpackers, Lone-Pine Koala Sanctuary and Mirimar Cruises for helping plan and conduct the study. Use of the free NetDraw application (http://www.analytictech.com/downloadnd.htm) was also greatly appreciated.

**TIM Study:** NowSMS (http://www.nowsms.com) who provided SMS server software; HP for the philanthropic grant for the Tablet PC; School of IT, Charles Darwin University for funding travel and research; Our anonymous participants; Bob Pascoe and Neil Crossley for data recordings; Michael Pascoe for assistance; Tristan Voysey, Adam Champion, and Dan Nicolau for study planning; and lastly my co-experimenter Dr. Nicola Bidwell.

**Postcard Study:** Roslyn Cooper, an anonymous travel agency, and anonymous participating hostels for their help planning and conducting the study.
Methods of Understanding and Designing For Mobile Communities

Blog and Diary Research: UQO for mobile device photos; Tribe.net, WhereSheGoes, Mel, and a large number of anonymous bloggers for their writings and support; GetJealous and TravelPod for access to travel blogs.

Also thanks to ACID who provided part of my scholarship funds and the opportunity to research backpackers in the Communities and Places project. This work was supported by ACID (the Australasian CRC for Interaction Design) established and supported under the Cooperative Research Centres Programme through the Australian Government's Department of Education, Science and Training.
List of Publications

Publications Forming Part of the Thesis

Refereed


Non-Refereed


**Other Relevant Publications Not Included in the Thesis**


Abstract

Society is increasingly on the move, mobile devices are commonly being used to coordinate group actions, and group communication features are rapidly being added to existing technologies. Despite this, little is known about how mobile groups act, or how communications technologies should be designed to augment existing behaviour. This is partially due to minimal research being done on the topic, but also to the lack of research methods available to study the topic with. Mobile groups are challenging to study because of frequent and long-duration movement, frequent distribution, and the rapidly changing environments they operate within. To address these issues, this research focuses on methodological issues surrounding the development of mobile devices for mobile groups and communities. More specifically it addresses backpackers, who are a relevant example of this type of community. The research primarily explores the convergence of computer supported cooperative work (CSCW) and the field of mobile device development. This enables the combination of emphasis on designing technologies for groups, social implications, mobile device design, and mobile settings.

Major research outcomes presented in this thesis lie in three areas: 1) methods, 2) technology designs, and 3) backpacker culture. Five studies of backpacker behaviour and requirements form the core of the research. The methods used are in-situ and exploratory, and apply both novel and existing techniques to the domain of backpackers and mobile groups.

Methods demonstrated in this research include: field trips for exploring mobile group behaviour and device usage, a social pairing exercise to explore social networks, contextual postcards to gain distributed feedback, and blog analysis which provides post-hoc diary data. Theoretical contributions include: observations on method triangulation, a taxonomy of mobility research, method templates to assist method usage, and identification of key categories leading to mobile group requirements. Design related outcomes include: 57 mobile tourism product ideas, a format for conveying product concepts, and a design for a wearable device to assist mobile researchers.
Methods of Understanding and Designing For Mobile Communities

Our understanding of backpacker culture has also improved as a consequence of the research. It has also generated user requirements to aid mobile development, methods of visualising mobile groups and communities, and a listing of relevant design tensions. Additionally, the research has added to our understanding of how new technologies such as blogs, SMS and iPods are being used by backpackers and how mobile groups naturally communicate.
Table of Contents

I. List of Figures .............................................................................................................. xvii

II. List of Tables.............................................................................................................. xxv

III. Preface ...................................................................................................................... xxvi

1 Introduction ............................................................................................................... 1

1.1 Research Question ............................................................................................... 3

1.2 Disciplinary Context ............................................................................................ 4

1.3 Focus and Outcomes of the Thesis ..................................................................... 7

1.4 Intended Audience and Document Structure .................................................... 10

1.5 Overview of Thesis .............................................................................................. 11

2 Literature Review ..................................................................................................... 14

2.1 Backpackers and Mobile Communities ............................................................ 14

2.1.1 Grand Tours and Travel on the Cheap ......................................................... 15

2.1.2 Behaviour ........................................................................................................ 16

2.1.3 Culture ............................................................................................................. 18

2.1.4 Relevance to Designing Tourism Technologies ............................................ 20

2.2 Overview of Related Technologies ...................................................................... 21

2.2.1 Smartphones, PDAs, UMPCs, Communicators ............................................. 22

2.2.2 Mobile Group Communications ..................................................................... 23

2.2.3 MoSoSo .......................................................................................................... 25
## Methods of Understanding and Designing For Mobile Communities

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.4</td>
<td>Navigation and Location Sensing</td>
<td>26</td>
</tr>
<tr>
<td>2.2.5</td>
<td>Visitor Guides</td>
<td>28</td>
</tr>
<tr>
<td>2.2.6</td>
<td>Cameras</td>
<td>31</td>
</tr>
<tr>
<td>2.2.7</td>
<td>MP3 Players</td>
<td>32</td>
</tr>
<tr>
<td>2.2.8</td>
<td>Web Logs (blogs)</td>
<td>33</td>
</tr>
<tr>
<td>2.2.9</td>
<td>Networking Technologies</td>
<td>36</td>
</tr>
<tr>
<td>2.2.10</td>
<td>Summary of Related Technologies</td>
<td>37</td>
</tr>
<tr>
<td>2.3</td>
<td>Themes in Mobile CSCW Research</td>
<td>38</td>
</tr>
<tr>
<td>2.3.1</td>
<td>Groups Versus Communities</td>
<td>38</td>
</tr>
<tr>
<td>2.3.2</td>
<td>Mobile Interfaces Influence Group Behaviour</td>
<td>39</td>
</tr>
<tr>
<td>2.3.3</td>
<td>Problems In Mobile Development</td>
<td>41</td>
</tr>
<tr>
<td>2.4</td>
<td>Related Development Activities</td>
<td>43</td>
</tr>
<tr>
<td>2.4.1</td>
<td>Conceptualising Products</td>
<td>43</td>
</tr>
<tr>
<td>2.4.2</td>
<td>Requirements Engineering</td>
<td>45</td>
</tr>
<tr>
<td>2.4.3</td>
<td>Communicating Requirements Within Design Teams</td>
<td>46</td>
</tr>
<tr>
<td>2.4.4</td>
<td>Summary of Related Development Activities</td>
<td>48</td>
</tr>
<tr>
<td>2.5</td>
<td>Related Theories and Frameworks</td>
<td>48</td>
</tr>
<tr>
<td>2.5.1</td>
<td>User Centred Design</td>
<td>48</td>
</tr>
<tr>
<td>2.5.2</td>
<td>Ethnography</td>
<td>50</td>
</tr>
<tr>
<td>2.5.3</td>
<td>Participatory Design</td>
<td>51</td>
</tr>
<tr>
<td>2.5.4</td>
<td>Action Research</td>
<td>54</td>
</tr>
<tr>
<td>2.5.5</td>
<td>Social Network Theory</td>
<td>56</td>
</tr>
<tr>
<td>2.5.6</td>
<td>Formative, Summative, Exploring and Evaluating</td>
<td>57</td>
</tr>
<tr>
<td>2.5.7</td>
<td>Context</td>
<td>60</td>
</tr>
</tbody>
</table>
# Table of Contents

2.5.8  Self-reporting of Participant Perspectives and Behaviour ....................... 64

2.5.9  Degrees of Mobility ................................................................................... 66

2.5.10 Extreme Mobility ..................................................................................... 67

2.5.11 Summary of Theories and Frameworks ..................................................... 70

2.6  Related Methods ......................................................................................... 70

2.6.1 Questionnaires ............................................................................................ 71

2.6.2 Diary Studies ............................................................................................... 72

2.6.3 Cultural Probes and Related Work .............................................................. 73

2.6.4 Low-Fidelity Prototyping ............................................................................ 74

2.6.5 Structure of Mobile Group Studies ............................................................. 75

2.6.6 Summary of Related Methods .................................................................... 78

2.7  Conclusion of Literature Review ................................................................. 79

3  Research Studies .............................................................................................. 81

3.1  Theory and Background for the Methods .................................................... 81

3.2  Multiple Methods For Different Aspects of the Research Situation ............ 83

3.3  Introduction to the Research Studies ............................................................. 85

3.4  Research Study: Site Survey and Contextual Interviews ............................. 86

3.4.1 Method ....................................................................................................... 87

3.4.2 Results ........................................................................................................ 90

3.4.3 Discussion .................................................................................................. 113

3.4.4 Summary .................................................................................................... 113

3.5  Research Study: Mobile Information Sharing (MIS) Study ........................ 114

3.5.1 Method ....................................................................................................... 114

3.5.2 Results ........................................................................................................ 119
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5.3</td>
<td>Discussion</td>
<td>176</td>
</tr>
<tr>
<td>3.5.4</td>
<td>Summary</td>
<td>179</td>
</tr>
<tr>
<td>3.6</td>
<td>Research Study: Social Pairing Exercise</td>
<td>180</td>
</tr>
<tr>
<td>3.6.1</td>
<td>Method</td>
<td>180</td>
</tr>
<tr>
<td>3.6.2</td>
<td>Results</td>
<td>183</td>
</tr>
<tr>
<td>3.6.3</td>
<td>Discussion</td>
<td>189</td>
</tr>
<tr>
<td>3.6.4</td>
<td>Summary</td>
<td>192</td>
</tr>
<tr>
<td>3.7</td>
<td>Research Study: Contextual Postcards</td>
<td>192</td>
</tr>
<tr>
<td>3.7.1</td>
<td>Method</td>
<td>193</td>
</tr>
<tr>
<td>3.7.2</td>
<td>Results</td>
<td>196</td>
</tr>
<tr>
<td>3.7.3</td>
<td>Discussion</td>
<td>202</td>
</tr>
<tr>
<td>3.7.4</td>
<td>Summary</td>
<td>203</td>
</tr>
<tr>
<td>3.8</td>
<td>Research Study: Electronic and Paper Travel Diaries</td>
<td>203</td>
</tr>
<tr>
<td>3.8.1</td>
<td>Method</td>
<td>204</td>
</tr>
<tr>
<td>3.8.2</td>
<td>Results</td>
<td>207</td>
</tr>
<tr>
<td>3.8.3</td>
<td>Discussion</td>
<td>229</td>
</tr>
<tr>
<td>3.8.4</td>
<td>Summary</td>
<td>232</td>
</tr>
<tr>
<td>3.9</td>
<td>Summary of the Research Studies Chapter</td>
<td>233</td>
</tr>
<tr>
<td>4</td>
<td>Practical Use of Methods</td>
<td>235</td>
</tr>
<tr>
<td>4.1</td>
<td>Introduction to the Methods Used</td>
<td>235</td>
</tr>
<tr>
<td>4.2</td>
<td>Embodied Demonstration of Methods</td>
<td>237</td>
</tr>
<tr>
<td>4.3</td>
<td>Method: Site Survey and Contextual Interviews</td>
<td>237</td>
</tr>
<tr>
<td>4.3.1</td>
<td>Brief summary of method</td>
<td>237</td>
</tr>
<tr>
<td>4.3.2</td>
<td>Reflection on method</td>
<td>238</td>
</tr>
</tbody>
</table>
# Table of Contents

4.3.3  Recommendations ........................................................................................................ 240

4.4  Method: Field Trips ........................................................................................................ 241

4.4.1  The Territory Is The Map (TIM) Study ................................................................. 241

4.4.2  Mobile Information Sharing (MIS) Studies ......................................................... 252

4.4.3  Method Template .................................................................................................... 264

4.5  Method: Social Pairing Exercise .................................................................................. 265

4.5.1  Brief Summary of Method ...................................................................................... 265

4.5.2  Reflection on Method ............................................................................................. 265

4.5.3  Recommendations .................................................................................................. 266

4.5.4  Method Template .................................................................................................... 268

4.6  Method: Contextual Postcards ..................................................................................... 269

4.6.1  Brief Summary of Method ...................................................................................... 269

4.6.2  Reflection on Methods .......................................................................................... 269

4.6.3  Recommendations .................................................................................................. 270

4.6.4  Method Template .................................................................................................... 272

4.7  Method: Electronic and Paper Travel Diaries ............................................................ 273

4.7.1  Brief Summary Of Method ..................................................................................... 273

4.7.2  Reflection On Method ........................................................................................... 273

4.7.3  Recommendations .................................................................................................. 277

4.7.4  Method Template .................................................................................................... 279

4.8  Summary of Practical Use of Methods ....................................................................... 280

5  Additional Research Outcomes ...................................................................................... 281

5.1  Design Outcomes ......................................................................................................... 281

5.1.1  Tourism Product Concept Sheets ........................................................................... 282
Methods of Understanding and Designing For Mobile Communities

5.1.2 Phone-based Medium Fidelity Prototype .................................................... 285
5.1.3 Social Pairing System Role Prototype ..................................................... 286
5.1.4 Product Concepts From MIS .................................................................. 288

5.2 Industry Response .................................................................................... 290
5.3 Summary of Research Outcomes ............................................................. 291

6 Discussion .................................................................................................. 292

6.1 Applicability of Mobile and CSCW Methods for Mobile Groups .......... 293
6.2 How to Choose Appropriate Methods ...................................................... 294
6.3 Triangulation Using Different Methods ................................................... 294
6.4 Use of Ethnography to Form Requirements and Product Concepts ...... 297
6.5 Use of Representations and Tangible Concepts ........................................ 301
6.6 In-situ Methods ...................................................................................... 305
6.7 Social Responsibility and Theoretical Choice ........................................... 306
   6.7.1 Choosing Design Theory With Social Intent ...................................... 306
   6.7.2 Technology and Those That Control Its Use ..................................... 307
   6.7.3 The Effect of Choosing Design Theories .......................................... 310
   6.7.4 Social Implications of Technology Use on Backpacker Culture ........ 312
   6.7.5 Where is Our Technology Design Leading Us? ............................... 313
   6.7.6 Potential Solutions: Subversive Technologies and Impact Statements .. 315
6.8 Summary of Discussion .......................................................................... 317

7 Conclusion .................................................................................................. 319

7.1 Summary of the Thesis ........................................................................... 319
7.2 Response to Research Question and Research Contributions.............. 321
### Table of Contents

7.3 Applicability of Results to Other Mobile Communities ........................................ 323

7.4 Future work ........................................................................................................... 324

7.5 Epilogue ............................................................................................................... 325

References ................................................................................................................... 326

Appendices .................................................................................................................. 340

A. Compilation of All Product Design Recommendations ........................................ 340

B. Compilation of All Product and User Requirements .......................................... 348

C. Table of Product Ideas ........................................................................................ 358

D. Backpacker Interviews: Information Flyer ......................................................... 369

E. MIS-1 Study: Consent Form ................................................................................ 370

F. MIS-1 Study: Pre-study Questionnaire – Page 1&2 ............................................. 371

G. MIS-1 Study: Post-study Questionnaire – Page 1&2 .......................................... 373

H. MIS-1 Study: Pairing Charts ............................................................................ 375

I. MIS-1 Study: Returned Postcard ........................................................................ 376

J. MIS-1 Study: A Cruise Ticket ............................................................................. 377

K. MIS-2 Study: Pre-study Questionnaire .............................................................. 378

L. MIS-2 Study: Post-study Questionnaire (page 1) ............................................... 379

M. MIS-2 Study: Post-study Questionnaire (page 2) ............................................. 380

N. MIS-2 Study: Returned Postcard ...................................................................... 381

O. Diary and Blog Studies: Paper Diary Entry ...................................................... 382

P. Diary and Blog Studies: Types of Transport ....................................................... 383

Q. Diary and Blog Studies: Group Activities .......................................................... 384

R. Diary and Blog Studies: Challenging Situations ................................................. 386
S. Diary and Blog Studies: Objects of Interest......................................................... 388
I. List of Figures

Figure 1: The merger of mobile device research and CSCW research. ................................................... 4

Figure 2: Academic disciplines surrounding the primary area of interest............................................... 5

Figure 3: Primary outcomes of the thesis are related to methods, but also to technology design and backpacker culture. Thus it is the convergence of these areas that most clearly defines the focus of my research outcomes. .......................................................................................................................... 8

Figure 4: Map of Australia showing major locations (from www.lonelyplanet.com). The East coast has the majority of the backpacking traffic along it between Melbourne and Cairns. ............................... 17

Figure 5: Diagram of the following sections. Themes arch over the other concepts. Development activities and theories and frameworks interact at the same level. Methods are influenced by the above concepts. ............................................................................................................................... 38

Figure 6: Exploration and evaluation happen to different degrees during use of formative methods... 59

Figure 7: Extreme mobility is the upper-right quadrant where the variables Change In Local Environment and Movement are most challenging for the mobile user. Prototypical examples of mobile users are shown, with references for papers relating to them (shown in black) where they could be located. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-2.5-mobility-chart.jpg. ............................................................................................................................... 68

Figure 8: a) One person’s perspective on the many; b) many people’s perspective on the collocated many; c) many people’s perspective on the distributed many. ............................................................... 76

Figure 9: Methods with different strengths were used to explore different aspects of backpacker behaviour............................................................................................................................... 84

Figure 10: Social Network Board .......................................................................................................... 88

Figure 11: A hostel notice board which has been enhanced for analysis purposes ......................... 89

Figure 12: Beachcombing. ..................................................................................................................... 90

Figure 13: Communal dinners. .............................................................................................................. 90

Figure 14: Carrying possessions into a budget hotel with shared rooms. ............................................. 93

Figure 15: Hiking in a group. ................................................................................................................ 93
Methods of Understanding and Designing For Mobile Communities

Figure 16: Eating around a campfire................................................................. 95

Figure 17: Meeting locals.................................................................................. 95

Figure 18: A group transit option...................................................................... 98

Figure 19: Swimming with other travellers..................................................... 98

Figure 20: Low-budget transport...................................................................... 100

Figure 21: Trying new things........................................................................... 100

Figure 22: Collecting firewood for a camping trip......................................... 105

Figure 23: Beds in a shared room................................................................. 107

Figure 24: Pool and patio outside................................................................. 107

Figure 25: Rules for the hostel........................................................................ 107

Figure 26: Lockers for storing items.............................................................. 107

Figure 27: Washers in laundry area............................................................... 107

Figure 28: Behind the counter of the main desk.......................................... 107

Figure 29: A decorative map of the hostel services...................................... 108

Figure 30: Shared kitchen space................................................................. 108

Figure 31: Desk for booking travel tickets.................................................... 108

Figure 32: The Internet café in the hostel..................................................... 108

Figure 33: Categories of forum discussions.................................................. 110

Figure 34: Conceptual diagram showing various social networks a backpacker is connected to..... 112

Figure 35: Prototypes chosen by participants for use during the study. The drawings on the foam were made by participants during the study........................................................................ 116

Figure 36: Travel history of participants in MIS-1. Line width indicates duration travelling with partners. Circle size indicates travel experience this trip for an individual.............................................. 120

Figure 37: Participants in MIS-2 formed three pre-existing subgroups: three female friends, a couple and two male friends. ........................................................................................................ 121
List of Figures

Figure 38 ..............................................................................................................................................122
Figure 39 ..............................................................................................................................................122
Figure 40: Lower and upper decks of the cruise boat, showing available seating, doorways, covered regions and stairs leading from lower to upper deck. .................................................................124
Figure 41: Full map of Lone-Pine Koala Sanctuary which participants walked around.....................127
Figure 42 : Subgroup A (front) sits away from subgroup B (back), while both privately review photos. ..............................................................................................................................................................130
Figure 43: Subgroup A stops to buy postcards as they had planned to do while on the boat .............130
Figure 44: MIS-1 Before. Perceived communication frequency between group members primarily occurs between existing subgroup members.........................................................................................132
Figure 45: MIS-1 After. Considerably more inter-subgroup communication is noted, with several pairs communicating very little (BP1-BP6 & BP1-BP3)...............................................................................132
Figure 46: MIS-2 Before. Similarly to MIS-1 the graph shows communicating within existing subgroups. ............................................................................................................................................133
Figure 47: MIS-2 After. Considerably less communication than in MIS-1 and subgroups remain reasonably isolated........................................................................................................................................133
Figure 48: MIS-1 Before. Social bonds between subgroup members are shown by thick lines at the beginning of the study...........................................................................................................................133
Figure 49: MIS-1 After. Some strengthening of bonds. BP1 & BP3 did not communicate much (see Figure 44) and also did not have a strong bond form. BP3 & BP4 did talk, but did not bond. ...........133
Figure 50: MIS-2 Before. Reported interpersonal bond before clearly show strong pre-existing relationships. ................................................................................................................................................134
Figure 51: MIS-2 After. Group bonds did not increase strength as much as in MIS-1 and BP4 feels little connection to the entire group. .........................................................................................................134
Figure 52: A portion of the park map. The bridge shown on the lower-right is the same as in Figure 52. ................................................................................................................................................138
Figure 53: Holding maps in Figure 6 while walking to determine a route .........................................138
Figure 54: A prototype is placed in a large jacket pocket, while a magazine rests on her lap and the coffee cup is shared. Coffee could be spilled and her hands are not free to manipulate a device. .....139
Methods of Understanding and Designing For Mobile Communities

Figure 55: Writing a quick outline of the day’s events while on the boat, before writing a longer journal entry at the hostel. Paper journals might be used prior to digital journals in the future. ....... 139

Figure 56: Pointing at an item of interest from the boat. ................................................................. 141

Figure 57: Discussing an item of interest before the boat started. .................................................... 141

Figure 58: Collaboratively taking photographs of feeding a roo. ..................................................... 141

Figure 59: A busy environment with attractions to see. ................................................................. 141

Figure 60: BP1 rests two containers on the floor next to his bag. These are impersonal items that are not kept close to the body. ................................................................. 143

Figure 61: BP2 chooses a seat for himself and BP1 on the boat trip to the park. ............................... 143

Figure 62: Collaboratively storing items in backpacks. ................................................................. 146

Figure 63: Sharing a photo with the researcher. ............................................................................. 146

Figure 64: MIS-1 Before: Trust of travel information between group members before the field trip. Wider tie lines denoted increased reciprocal trust as perceived by both members. ...................... 148

Figure 65: MIS-1 After: Trust of travel information after the field trip does not show significant changes from previous high levels. ................................................................. 148

Figure 66: MIS-2 Before: Trust in travel information from other backpackers is reasonably strong before they spend time together. ................................................................. 148

Figure 67: MIS-2 After: Trust following the field trip remains strong. Backpackers implicitly trust other backpackers information. ................................................................. 148

Figure 68: Demonstrating a head-mounted display wirelessly connected to the tablet stored behind the body. ................................................................................................. 158

Figure 69: Demonstrating signing above the camera mounted in the phone to communicate with deaf friends. ................................................................................................. 158

Figure 70: Additional news, weather and hostel comparison features have been added. ............... 160

Figure 71: The device prototype rests on one knee while she writes a note on another piece of paper. This type of device might be dropped easily. ................................................................. 160

Figure 72: A location sensing tablet computer has had a screen, buttons and a fold-out thumb keyboard added. ................................................................. 162
Figure 73: Backpackers collaboratively discuss and hold the prototype, discussing possible features. They juggle the device and two apples concurrently. ................................................................. 162

Figure 74: The geo-tagging device offered virtual-graffiti functionality. .................................................... 163

Figure 75: A participant discusses why he did not think location tagging would be useful for backpackers. .......................................................................................................................... 163

Figure 76: A circular screen and buttons has been added by a backpacker.................................................. 165

Figure 77: A backpacker thinking about potential uses for her device while standing in the middle of a field. Other people, animals, weather and current tasks probably affected what she chose to use it for. ................................................................................................................................. 165

Figure 78: A device for identifying objects in the environment................................................................. 167

Figure 79: Discussing what types of objects would have been identified on the field trip..................... 167

Figure 80: Information and navigation buttons have been added to the digital wallet............................ 168

Figure 81: Resting the device on a boat windowsill to draw interface components. This reflects how a pen-based interface might be used on a small device........................................................................................................ 168

Figure 82: The triangle shaped prototype was not marked up............................................................... 170

Figure 83: Two prototypes sitting on a lunch table, visible to others and interspersed with food and writing implements. These devices might be dropped or have food spilled on them. They also might be able to exchange information using short-range protocols........................................................................ 170

Figure 84: Five prototypes were not chosen by participants................................................................. 175

Figure 85: Spectra between opposing design goals. ................................................................................. 177

Figure 86: Participants rating and discussing topics. ............................................................................... 181

Figure 87: A postcard returned a week after the study explaining longitudinal social tie development (names erased). .................................................................................................................... 182

Figure 88: A pairing card given to a backpacker and completed during discussions with other backpackers they were paired with (names erased). ................................................................. 183

Figure 89: Pairings selected for backpackers in Workshop 1. Ties between travelling partners were not used in the study or shown above .................................................................................................................... 185

Figure 90: Pairings selected for backpackers in Workshop 2. Ties between travelling partners are not shown and not all ties made were discussed by backpackers........................................................................ 187
Methods of Understanding and Designing For Mobile Communities

Figure 91: Front of postcard with instructions and mailing address...................................................195

Figure 92: Back of postcard with questions for travellers. .................................................................196

Figure 93: A response from a backpacker that both has a jovial tone and discusses serious issues. 199

Figure 94: Photographs showing outdoor travel scenes.................................................................209

Figure 95: Photographs showing indoor travel scenes.................................................................209

Figure 96: Transportation varies widely depending on location. .......................................................210

Figure 97: Large-scale environmental photographs help convey the context of a situation to remote readers.................................................................211

Figure 98: A section of a chart showing a backpacker’s travel for several days. Location is indicated in the blue bars, social networks which formed at that location are shown on the left, and the activity and social context are listed on the right. Names have been changed. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-3.8-soc-net-by-loc.gif .....................................................212

Figure 99: A social network graph showing the backpacker in the middle, surrounded by the activities she has done (blue squares) and the people she met through those activities (pink circles). Names have been changed. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-3.8-soc-net-activities.gif .....................................................................................................................213

Figure 100: Objects of interest that were photographed......................................................................218

Figure 101: Images conveying symbolic meaning ..............................................................................218

Figure 102: A graph of physical context shows varying levels of specificity of location as the backpacker moves. Each row is the next sequential location, and each column begins high-level and move progressively lower to the ground. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-3.8-physical-context.gif .....................................................................................................................220

Figure 103: A graph showing the behaviour of bloggers in Australia. Circle size indicates the number of times a city was blogged about and line widths indicate the number of bloggers who talked about those cities in sequential order. City locations are approximate, node size and tie width are numerically accurate. Lines do not necessarily denote physical travel, but implied ties between successive blog entries. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-3.8-australia-30-cities.gif .....................................................................................................................222

Figure 104: The graph shows the backpacker in the middle, surrounded by her social network developed during 3 weeks of travel. Female acquaintances are circles, males are triangles, groups are squares and animals are diamonds. Lines show the strength of social connections between these
List of Figures

people. Names have been changed. A larger version of this image is available at:
share.userdesign.com/thesis/ under ch-3.8-social-net.gif .................................................................226

Figure 105: Describing social ties to friends and family members while travelling .........................239

Figure 106: Experimenter logging a location identified by a picture on a tablet computer held by another experimenter .........................................................................................................................245

Figure 107: Map showing the routes followed by all members during the rendezvous and the start and end points ........................................................................................................................................245

Figure 108: In the Group Communication View SMS messages and pictures are combined and time-stamped to show the collective narrative of the activity .................................................247

Figure 109: A non-specific term leads to a miscommunication and clarification between group members. Callouts and images from on the ground assist recreating the scene. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-4.4-reconstruction-1.gif ..............................249

Figure 110: Incorrect instructions, vague location descriptions and unclear recipients lead to frustration of group member B. Actual locations and compass directions are marked. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-4.4-reconstruction-2.gif ..............................250

Figure 111: The potential problem of automobile traffic affecting the behaviour of a group member is noted. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-4.4-reconstruction-3.gif ........................................................................................................................................251

Figure 112: A device that would permit digital text entry while walking .............................................261

Figure 113: A prototype editor that would allow labelling of different content types to facilitate faster graph generation. A word can be selected and then labelled as time, location, transport, people, or activity by selecting a button at the top ........................................................................................................275

Figure 114: A scenario based on a real account of a backpacker losing her airline ticket at an airport. This results in a list of solutions to the problem in the social and physical context of the airport. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-4.7-scenario-1.jpg .................................................................................................................................277

Figure 115: A mock-up of a handheld travel assistant showing situational alerts and community authoring .............................................................................................................................................282

Figure 116: A mobile device concept which helps determine how to estimate costs, plan a route, find information about a location and find friends to join in the fun. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-5.1-product-concept-1.jpg ..............................................................283
Methods of Understanding and Designing For Mobile Communities

Figure 117: A mobile device concept which encourages face to face communication by helping the backpacker connect with locals, travellers in similar situations, facilitating swapping of possessions, job offers and keeping track of friends. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-5.1-product-concept-6.jpg

Figure 118: A wireframe layout for an improved design of the concept sheets. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-5.1-wire-layout.gif

Figure 119: An interactive high-fidelity prototype demonstrating mobile group features. The interactive prototype is available at: share.userdesign.com/thesis/ under ch-5.1-phone-prototype.pcgi

Figure 120: The invisible interface to an artificial social pairing system

Figure 121: The invisible interface to a natural social pairing system

Figure 122: Social network map by sequential location. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-3.8-soc-net-by-loc.gif

Figure 123: Physical context chart. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-3.8-physical-context.gif

Figure 124: Reconstruction of a distributed group activity. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-4.3-reconstruction-1.gif

Figure 125: Scenario with social, historical and physical context for a group interaction. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-4.7-scenario-1.jpg

Figure 126: Social network graph showing a backpacker’s social ties. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-3.8-social-net.gif

Figure 127: Blogging behaviour around Australia. A larger version of this image is available at: share.userdesign.com/thesis/ under ch-3.8-australia-30-cities.gif
II. List of Tables

Table 1: Types of social pairings ........................................................................................................... 184

Table 2: Open-ended Postcard Questions ............................................................................................ 194

Table 3: Types of photographs With People ......................................................................................... 208

Table 4: The most frequent travel ties between cities ........................................................................... 224

Table 5: The most blogged-about cities ................................................................................................. 224

Table 6: A taxonomy showing different purposes for methods used. Solid cells indicate full coverage, chequered cells indicate partial coverage ............................................................................................ 236

Table 7: Methodological Issues Affecting Prototype Evaluations ........................................................ 258
III. Preface

I backpacked for a year around Australia and Southeast Asia in 2002-3. While travelling I noted how regularly I had to orient myself in new locations and how often I got lost. I frequently wondered where to find necessities, and I tried to figure out the local culture. Guidebook entries helped, but chatting with other travellers that I met in hostels, restaurants, busses and boats offered the most insight and entertainment. I also noted the limits of existing technologies supporting the travel lifestyle. Internet cafés seemed ubiquitous, even in small villages in Vietnam and remote islands in Thailand. However, the Internet largely connected travellers with those at home, and occasionally with backpackers they had met long ago that were still broadcasting travel diary updates. It appeared that there was an opportunity to investigate what technological artefacts backpackers would find useful while exploring foreign lands. So I started applying for Ph.D. programs. I had my original transcripts and birth certificate mailed to me poste restante (a system of collecting mail from local post offices) in Thailand. I updated my resume and filled out university application forms from Internet cafés. I was living a mobile lifestyle. However, with the exception of occasional calls from my parents on my mobile phone, the only place I could do my everyday business was in a stable café. Similarly, any travel research I needed to do was either done through a paper guidebook, chatting with those around me, or back in the office-like environment of the Internet café. Clearly there was more that could be done with mobile devices to assist both my travel and my career goals – only no one had created them yet.

Several years later, I was working on a Ph.D. on the topic of researching mobile communities and developing mobile devices for them. As part of this I was conducting some research with TravelPod, a company supplying travel blog (web-based diary) facilities to backpackers. There I met Carmella, one of their recent employees who impressively had been travelling for three years straight. She has an account under the pseudonym WhereSheGoes, and had been blogging about her travels every few days during the entire trip. She had circled the world several times and touched all of the world’s continents. And now she was finally returning home – via a cruise line between Europe and the USA, which most people choose to fly. Clearly she is someone who intimately understands what it is to be a backpacker and who might be able to convey part of the experience to others.
Backpackers have become the primary focus of my research for a number of reasons. First, they are friendly and interesting to talk to. Second, they are easy to bribe, which is important when trying to find participants to take part in boring research studies. Third, they represent an enormous mobile community with very little technological support, which still manages an effective social network providing travel tips. But as is the case with most rich social experiences, a few words summarising major aspects of a culture do not do justice to the original experience of living it.

Since my thesis is surely not going to do justice to what it really is to be a backpacker, I have determined that someone who can truly be termed a professional backpacker should tell part of the story herself. Accordingly, I have interviewed Carmella (WhereSheGoes) about her travels, and have selected excerpts from her blog to illustrate points that are representative of the broader backpacking experience. If you are interested in hearing an entertaining travel story which helps to contextualise the research, please read on. Alternatively, if you want to immediately sink your teeth into the research, please go to the Introduction in Chapter 1. My sincere thanks go to Carmella for her willingness to share her travel experiences with the readers of this thesis. Her trip started in Europe and took her to many exotic locations. The following sections relate Carmella’s experiences and opinions about various aspects of travel. In some ways it is the ‘story behind the blog’ and in many ways it is the story of ‘the dedicated backpacker’.

Life Before Travel

Before someone has truly been ‘bitten by the travel bug’ and can identify strongly with being a backpacker, they always have a first trip by themselves or with friends. They frequently do not have much experience at this point and are typically in their late teens or early twenties. Leaving one’s own country for the first time, and for a long period of time (often for a year or longer), is frequently a scary experience. Reasons for travel vary, but it always takes some commitment to extract oneself from the routines and responsibilities of daily life. Carmella faced these issues and other practical matters such as: finding funding for such a long trip, the dilemma of whether to study now or later, and how to balance work and leisure.

“It was not my intention to travel around the world. It was never really my goal. When my parents divorced, we did not have much money so if I wanted something, I had to work for it. My mom could not give me an allowance anymore so I found other little
jobs. I moved out very young and realized that although I had been accepted, I could not afford to go to University. So instead of borrowing (I hate being in debt), I decided to work and save the money. I did not know what I wanted to study yet anyway and did not want to waste money on a degree I would not use. By the time I had enough money, I still did not really know what I wanted to study. I guess I thought that travelling would be a better use of my money and that I would learn a lot more than in a classroom. Plus I had worked so hard for so many years, I desperately needed a vacation. Or more like a sabbatical.

I worked for a lot of years making lots of money but burnt out at 25. Realized that life was not about working and happiness was not determined by the number of inches of your TV. So I quit the job and sold everything I owned (more or less...kept a few investments) and left. I had a good relationship with my family and friends but I felt like I was not really growing. I could go to University but I did not know what I wanted to study. I never really thought backpacking was very interesting but then all of a sudden, it just seemed like the right (the only) thing to do. I kind of came to a point in my life where something needed to change. I was not sure what that something was so I just changed everything…"

Leaving Home

The beginning of Carmella’s blog relates the excitement of leaving home.

“I am finally ready to go. I have quit the job, sold the stuff, and said goodbyes. I am leaving in less than a week. My sister will be driving me down to Calgary to catch my flight. I am still not really nervous but I get emotional some days thinking about what will come of all this. Everything in the planning for this trip has come so easily which just reminds me that I am on the right path. I hope to get any last minute errands done this week. I am still in search of the perfect shoe.”

In many ways the challenge of being a successful backpacker is knowing what to leave behind. Backpackers primarily have the possessions that they carry on their backs available to them. While backpacks can get fairly large there is a limit to what can be comfortably carried. Thus, there is a tendency to analyse what is really needed, and to highly appreciate good travel gear. New travellers often do not know what to pack and even seasoned travellers can find that different equipment is needed in various locations.
“The gear I bought was mainly trekking and outdoor gear. First I found the smallest backpack I could that would have a detachable daypack. I did not want to be one of these people carrying around their house with them. As for clothes, I had a few pairs of zip-off pants (legs come off converting them to shorts) and a variety of tops. Almost all my clothes were wrinkle free and thin quick dry material. I had one white shirt that I lost in the first few days. White is not a good travel colour. Great was a travel towel from Hostel International. Its soft and thin and dries quickly. Love it. Soaks up a lot. Then I had a really great sleeping bag that packed into a tiny ball. It was wonderful and saved me many times...I tend to get cold. I bought my ticket from a student/adventure travel place (a branch of TravelCuts). I spent very little time and just kinda went with it. There was a sale through an Asia airline so I got that one but it ended in New Zealand. I planned to buy more tickets later on. So I did not start with [an] around the world ticket, but I ended with one.”

Everyone develops some understanding of foreign countries via television, books, newspapers and other media. Sometimes this is the reason people choose to go to a location. However sometimes as in Camella’s case, it is simply the desire for something new that prompts a trip.

“Regarding expectations of Europe. I did not really have any. Here is the thing. I spent a lot of my life until this point working and in a serious mindset. I had not really thought much about anywhere else. I was focused on work. I did not really know what to think about other places. I guess I knew they would speak other languages and that it would be old. That is about the extent of it. Simple, I know. I just wanted to adventure. The only thing that I was sure would change was the fact that I was no longer stuck in a schedule and planning my days out to the minute as I had in my old job. Now I was free.”

Change In Perspective

Arriving in a foreign country for the first time can be a surprising experience. Language, money, customs, driving rules, people, clothing and many other things can be dramatically different than what one is accustomed to. Being away from home for long periods can produce a disconnection from familiar norms and allow backpackers to try new lifestyles. It is also well documented that people often experience culture shock when travelling. Carmella experienced these things and discusses how travellers change while away from home.
“Before my round-the-world trip, I had done the typical week to two week long packaged holidays. I would not say that is travelling though. I had been on cruises, resorts and short holidays but never had left the continent (or my comfort zone). I suppose that in the beginning when I arrived in Europe, I was overwhelmed by the change in culture, language, architecture, landscape...everything.”

Her blog during this period relates the wonder and understandable confusion with which she experiences the locations she travels through.

“I am finally here. I am really tired and this keyboard is funny...the ‘y’ is not in the right place and there are dots on top of the letter öäü. It is a different world here. Note to self: buy compass. I got lost 4 times today. Its ok though because I got to see places I prolly would not have gone to by plan.”

“Yesterday I went on a motorcycle ride all over the place. The scenery is so picturesque. I saw sheep, rolling hills, snowy capped rock towers ;)... It was just like the postcard! I really hope that all is well where you are. I go to bed so happy that I have such wonderful people in my life. It is really starting to hit me that this whole trip...is pretty special. I know its only the third day but I have to wonder when the surreal feeling will wear off. But then I stop, because I realize that it will only wear off if I let it.”

When I talked with her she reflected on how the experience of travelling by herself for so long has affected her.

“Comparing the beginning to the end of my travels, I would say that I have grown in many ways. I am more open-minded to new things and much more willing to try just about anything. Instead of being threatened by things that may be different than what I am used to, I now try to understand them rather than judging and labelling them. I see diversity as a learning experience and chance to grow. “

“[For example, while] speaking with someone with different views or morals or values, I no longer feel the need to convince them of my thinking. I would rather listen and learn why and how they get to their conclusions. Perhaps I am more flexible. I have realized that there are many many ways to get to the same place. And my way and your way may both be correct. So I try to listen more. I try to understand why. I
am more careful and responsible with my words and actions than I was pre-travel. I see how much of an effect they can and do have. I am trying to live in a heightened awareness causing the least amount of unnatural disruption. If I can benefit the environment around me, then that is a bonus.”

The Travel Experience

Many unexpected things happen during travel. These events can range from being awe inspiring, fun, tedious or frightening. Occasionally situations arise which are 'perfect moments', as the following blog entry indicates.

“The sailing conditions were perfect as the sun shone down over the ocean as we ploughed through the slight waves. Every now and then a fine mist would fly over the deck cooling us just enough. We were all in great spirits as we anchored just off Great Keppel Island. There were only a few other boats in the area and the long white beach was deserted.”

Even common activities such as staying at hostels can produce fun experiences. When Carmella was in Switzerland she enjoyed the atmosphere and accent of the locals where she was staying.

“I am staying at the Funny Farm. You can just sit and play monopoly, or chat with one of your newfound friends. Because here everyone is your friend. I have already gotten pages of travel advice. You can play tennis, foosball, pool, or ping-pong. Or you can jump out of a plane if that is what floats your boat. I mean, you have to sleep in a barn but really who would not want to sleep next to Mr. Ed or Babe? How often do you get to sleep below Mickey Mouse or Felix the Cat? Everyone I have met (prolly 30 new great people in just one day) is such a character and has so much to say. I love it.”

However, not all experiences are pleasant. An example of a frequent experience which can be tedious is transportation. One of Carmella’s blog entries discussed a particularly trying flight to the Seychelles islands.
“The plane ride was a bit tedious, but luckily I was able to block out the problem with a movie I blasted in my ears which took up almost the whole plane ride. The whole plane (and it was a 747…but not all 400 seats were full) seemed to be all honeymooners and couples…except for this one family of five which consisted of two oblivious parents with three bratty boys who terrorized anyone within 10 feet.”

Unfortunately not all travel experiences are enjoyable or safe. These experiences often make good stories later, but they are stressful when they happen. Surviving one tends to increase the self-confidence of the traveller greatly and enhance one’s ability to cope with future situations. Carmella relates a particularly trying experience in Greece.

“I asked about 15 travel agencies how I should get to Patras (which is 3 hours away by bus and 4.5 by train). No one knew. Or shall I say no one wanted to tell me. I was getting very frustrated because I knew that they knew but because I was not buying anything from them, they refused to help me. “

“I could not find a bus for the life of me so I decided to take the train. I knew where the metro was so surely I could find the way. About three stops into it and a half hour later, I realized that there was no way I would make my midnight ferry if I took the train route. So I got off and went back the other way to where I had started. I began asking another 10 travel agents, by now having tears in my eyes dreading spending the night in Athens and missing my ferry to Venice. “

“Finally a girl told me to take a taxi to this place that starts with a K and there would be a bus there. I had to repeat the name of the bus station 5 times so I would get it right to the driver as many of them do not speak English.“

“Next, hoping I was on the right track and only 5 hours away from midnight, I tried to hail a cab. Would you believe NO ONE would stop for me! I could not believe it! Here I was practically THROWING myself in front of them and they just sneered! Then the seediest looking prolly not even a real licensed cab stopped. It had a makeshift taxi sign on top and was very beaten up. I had no choice. I got in and repeated the “K”
place. Then I asked how long it would take but the driver informed me he did not speak any English. I sat there watching him chew off all his finger nails into bloody stumps as he drove me into the most deserted and decrepit parts of Athens. I was sure I was about to be raped and murdered, so almost in tears I prayed again for the hundredth time that day. I reminded myself I could not cry because that would prove that I did not have faith...and then what would I have.”

“I can not tell you the tidal wave of relief that washed over me as we suddenly turned a corner and there was the bus station. I hurried to the Patras bus stop and it was just pulling out. I begged the driver to take me but he said that I did not have a ticket. I had to go 50 feet to buy a ticket. By the time I got my ticket a few minutes later, he was gone. I would have to catch the next bus which was cutting things dangerously close.”

“I got to Patras at 11pm and still had to validate my ticket at the Minoan Lines ticket office which was 9 or 10 long blocks from the ship. I decided to cab it and hope that the office would be open, which it was, and then finally I made it onto the ship. For the 4th time that day, I almost cried but now it was from relief and happiness. I found my little spot on the floor of the ferry opened up my sleeping bag and proceeded to sleep for the next 26 hours.”

It is these types of situations which most backpackers would prefer to travel without, and are the impetus for much of the research in this thesis.

**Planning During Travel**

Part of the joy of backpacking is the freedom it provides. Many backpackers avoid planning, instead choosing to take advantage of chance opportunities and see where the journey takes them. However, there are circumstances where planning is necessary and useful. I asked Carmella what she thought of this.

“I do not really plan too much though it really depends. I could tell you a bunch of different factors it could depend on like time, accessibility to planning resources, money, but most of all, it comes down to mood. If I feel like it, then I plan. If I do not feel like it, I do not. Sometimes you can get better deals if you plan ahead but then sometimes you can get better deals by waiting until the last minute. There are some countries that they say are very dangerous or busy so you should make sure you
have something set up. But I am not afraid of not having plans. I see it as an adventure.”

“There is as much freedom as you allow yourself. Only you restrict yourself. It seems to all come down to choices. If there is something you MUST do then I suppose planning ahead would be helpful. If you are restricted by money or time, you may need to be more purposeful in your travels. If you have certain goals you must achieve, like seeing a certain country, then you must find out if you need a visa or certain vaccinations. But for me, I lean towards not making too many commitments. I am not too upset if I do not get to see some monument or church or landmark. If it is closed that day or I should have bought tickets in advance, then I skip it. Planning and scheduling life reminds me too much of my old job and now I try to relax and take it as it comes.”

“Some people think planning allows you freedom but too much can be restrictive. I suppose backpackers are typically more laid back, open-minded, flexible and adventurous than the other types of travellers. This is a very general statement and one really must take each person on an individual basis. Every traveller seems to have their own style. I have seen backpackers who schedule everything down to their rest stops even using a day timer! Then I have seen people in resort packages wandering about in local hangouts looking for new experiences, no map and no preconceived ideas.”

Stages In Life and Returning Home

Travelling can be difficult, and the frequent and dramatic changes in environment have an effect on the backpacker. Living this type of mobile lifestyle often provides new perspectives on what home is and how stability plays a role in life.

“To me, travel means experiencing life on different levels. At home, or in stable consistent environments, one may be limited in what they are exposed to. When travelling, there is a much higher number and intensity of unique learning experiences and challenges. So in a way, travelling is a way to accelerate one’s growth.”

“After three years of travel, I definitely think a break is in order. If there is one thing I have learned, it is the importance of balance. So I feel it is time to rest, recuperate and process all the events of the past few years. In a way, I see it almost as a decompression period. Like I have collected puzzle pieces from all over and now it is time to sit down and try to put them all together.”
“Like I said before, there is definitely a need for balance in life. Too much of anything is not usually a good idea. I think that to know one side, you must know the other. Having both perspectives can give you a much better understanding, and that is to me what life is all about. Understanding. I see the benefit in both ways of life and I think that like most things, it can be a cycle.”

Sometimes it is not the type of transit or choice of locations that sets backpackers apart, but their reasons for choosing something or way of approaching a situation. Carmella chose to take a cruise line instead of an airplane on her route home, and she had good reasons for taking a mode of travel frequented by package tourists.

“I am on a boat because I was interested in trying something unique and this came up as a pretty good deal. For me, this was an alternative to flying across the Atlantic. Crossing it by sea was a form of travel I had not tried and reminded me of the early explorers tho I am sure they had it very different than a cruise lifestyle. You can see many places in a short time though you really can not spend much time as you only have one day. I had the time and it was not a whole lot more expensive than flying. I have cruised in the past and am no longer excited about going in circles as most cruises routes do. But using it as a form of transportation interested me.”

“I have used the opportunity to speak to many passengers (mostly from United States) about their country and opinions. I have also learned a lot from the crew who happen to come from all over the world (usually less fortunate countries). I am sure there are not many backpackers aboard and find the exposure to the different demographics interesting. There are many extremes and contrasts here.”

When Carmella returned home she experienced some of the culture shock and contemplation which is common for people returning after long periods of time. In the following entry she described her thoughts after arriving to stay with a friend at home.
"I slept pretty well although I still had a feeling of surreality through the next few days. I located some stuff that I had stored from before my trip and packages of stuff I had sent home. I had several time capsules to open. I let it all explode in my room thus beginning the long and emotional task of organizing my ‘stuff.’ I sorted through clothes I have not seen for years, remembering the last time I wore them."

"I came across the clothes I had first used in the beginning of my trip. I inspected them carefully remembering the wear and tear fondly. They felt like ancient artefacts from a life previous as they seemed to have a special energy. I decided what would retire and what would be amalgamated into my new wardrobe. It was quite the process as I would sometimes get choked up with the overlapping feeling of the old and new. It felt like introducing deep-rooted solidity to a magic light freshness. It seemed to create a floating like feeling as they mingled together. It is a strange space. Nostalgic and poetic."

It is difficult to travel without thinking about what one is learning, and how it will influence the rest of one’s life. This type of introspection often leads to personal philosophies of travel which explore the collective experience of large numbers of backpackers. Carmella commented on this below.

"Travel seems to expand ones awareness and is a powerful tool in understanding the world in which we live. Perhaps the more people who do it, the higher the levels of tolerance and understanding [that] will be reached. One of my favourite quotes is by Albert Einstein. ‘Peace cannot be kept by force. It can only be achieved through understanding.’ I see that the trend is moving towards longer periods of travel and certainly technology has enabled us to live more mobile lives."

I also asked her about that perfect shoe she was looking for when she left home.

"Did I find the perfect shoe? I learned that nothing is perfect forever but some things are perfect in that moment. And in that moment, yes, any shoe that would take me from here to there comfortably was good in my eyes."

Carmella’s travel blog is available to the public at:
http://www.travelpod.com/members/whereshegoes
Towards the end of my Ph.D. candidature I was backpacking in Japan and reflecting on some of Carmella's insights as well as the conclusions of my own research studies. Many situations arose while travelling which underscored the need for better tools for travellers. However, one particular excerpt from my diary stands out as an example of the everyday problems of budget travellers and the role better tools could play in improving the travel experience.

A native English speaker, I am only competent to utter two phrases in Japanese: konnichi wa (hello) and arigatō (thank you). With regard to my research, a particularly relevant experience occurred upon my arrival in Sendai. It was raining outside, threatening to get dark, and I was getting hungry. Sendai is a large city with train, subway and bus systems.

The tourist office was closed, and for some unknown reason my guidebook only listed three budget hotels, in vastly different parts of the city. After stumbling out what I hoped was the proper subway exit into the pouring rain (taxis are outrageously expensive here), I began trying to locate my chosen ryokan (Japanese bed and breakfast) on foot. It was nowhere to be found.

Street names on the map were in the Roman alphabet while street signs were in the Kana alphabet. Additionally, streets were omitted from the map, but I was fairly sure I was in the right location. I resorted to asking at local coffee shops and hotels. Imagine trying to get directions in a language you do not speak with street names you can not read.

Needless to say, after another hour of walking in circles it was dark, I and my pack were soaking wet, and I checked into a hotel offering rooms at three times my normal budget. This was a smart move. It turns out the ryokan was out of business and there was no certainty the others listed in the guidebook were not either. Calling ahead does not work well when you do not speak Japanese and your GSM mobile phone does not work in Japan.

Viewed from a design perspective, a number of things could have helped. Accurate information, a simple way of contacting the hotel while on the road, comments posted by recent travellers, an accurate map switching between Japanese and anglicised street names (and showing current location), more extensive listings, and many more solutions come to mind. Observing the problems backpackers experience uncovers requirements and generates design ideas. This thesis addresses this by exploring...
methods of studying backpackers, and the broader category of mobile communities. These methods can be used to provide solutions for the practical daily difficulties of travelling, such as I and others have experienced. Hopefully when we travel in the future there will be mobile tourism technologies available which help to smooth out the bumps we do not like and help us find the ones we do.
To all those who have provided intellectual
and physical assistance on the journey