Women’s Cycling Participation in Australia: Examining Influences and the Role of Cycling Education

by

Katherine Louise Rowe
BappSc (Ex&SpS), BCom (Hons)

Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

Deakin University

December, 2013
I am the author of the thesis entitled:

‘Women’s Cycling Participation in Australia: Examining Influences and the Role of Cycling Education’

submitted for the degree of Doctor of Philosophy

This thesis may be made available for consultation, loan and limited copying in accordance with the Copyright Act 1968.

'I certify that I am the student named below and that the information provided in the form is correct'

Full Name: Katherine Louise Rowe

Signed: [Signature Redacted by Library]

Date: 11 December 2013
DEAKIN UNIVERSITY
CANDIDATE DECLARATION

I certify that the thesis entitled:

‘Women’s Cycling Participation in Australia: Examining Influences and the Role of Cycling Education’

submitted for the degree of Doctor of Philosophy

is the result of my own work and that where reference is made to the work of others, due acknowledgment is given.

I also certify that any material in the thesis which has been accepted for a degree or diploma by any university or institution is identified in the text.

'I certify that I am the student named below and that the information provided in the form is correct'

Full Name: Katherine Louise Rowe

Signed: Signature Redacted by Library

Date: 11 December 2013
PUBLICATIONS

Published Work


Conference Presentations


ACKNOWLEDGEMENTS

What a challenging and rewarding ride this has been, none of which would have been possible without an extensive support crew full of people who each played an important role in helping me through this process.

My first, and in many ways most important, thanks go to my principal supervisor, Professor David Shilbury. Your encouragement was the driving force behind my initial interest in completing a research degree. Over a period of years, you have shown the utmost faith in my abilities, inviting and challenging me to achieve things I thought were well beyond my reach. Your door was always open and my thesis drafts reliably returned with valuable feedback within days of you receiving them. Throughout my time at Deakin, you have strategically provided me with opportunities to develop a vast range of academic skills through numerous teaching and research experiences. For your role in shaping me into a diligent worker, with a can-do attitude, capable of more than I thought, I will be forever grateful.

To Associate Professor Lesley Ferkins (tweet to L-Ferk), you really were the glue that held this whole operation together. Your perspectives were always wise and considered, but most importantly, kind and supportive. You showed me that you don’t always need to be serious to be smart, which allowed me to be myself and enjoy the ride. You encouraged me to learn, grow and develop in an academic sense and as a person. Our discussions challenged my practical brain to think conceptually and better appreciate the value of the hairy, scary theory monster. My advisor, my mentor, my friend - time to add another bead!

As the third musketeer of my supervisory team, Associate Professor Erica Hinckson, you played the scrutineer role particularly well. From the outset, your willingness to be involved as a supervisor was a key reason I committed to completing a research degree. Your knowledge regarding physical activity research was invaluable, and your input with respect to chapter layout was a notable contribution. Thank you for the time and effort you invested as a supervisor.

My time at Deakin provided me with endless opportunities to develop academically and make wonderful friends. I wish to thank members of the Deakin Sport Management team (Adam, Pamm, Sheila and Paul) and School of Management and Marketing staff (administrative and academic) for all of the support I received. To Deakin students (past and present), you were so important in this journey. Thank you to Sarah for being a wonderful friend and for showing me the ropes. To my Canadian brother Geoff, many thanks for keeping me sane (most of the time) and for being an all-round great guy. To Hannah, Ang, Jon, Georgina, Shobhana and
Yolande, your support and encouragement were greatly appreciated, every step of the way. Beyond Deakin staff and students, I would like to extend thanks to Dr. Emma Sherry. Working with you has been an absolute privilege and I can only dream of one day being as efficient at anything as you are at everything!

This research required cooperation from a number of people. Thank you to AustCycle management for allowing me to focus my research on your programs and for your assistance along the way. A big thank you is reserved for the two AustCycle providers and respective teachers who went to great lengths to assist me in my efforts to observe sessions and interview participants. This research would not have been possible without you. Furthermore, to the wonderful ladies I met, laughed with, and interviewed, thank you for dedicating your time to my research and for making this a particularly rewarding experience for me.

One of the sacrifices I knew would come with completing a PhD was giving up precious time with family and friends. You have all been so patient and understanding and I thank you for listening to my complaining, accepting my excuses for not being able to attend events, and for supporting me through this process. To my immediate family, Mum, Tim, Grandma, Geoff, Jess, Amanda, Mel, and my extended family of wonderful aunts, uncles and cousins, thank you for making life fun and full of love! To the wonderful girls, Kelly, Sarah, Lauren, Rikki, Kate, and Renata, thanks for the laughs and I look forward to seeing more of you soon!

Finally, a few special mentions: To Gareth, thank you for your patience, calmness, kindness, humour, silliness, love and wonderful support through this journey. You make every day fun and special and I can’t wait to spend more weekends with you and less with my laptop! To my brother Tim, thank you for always being there for me and believing in me so unreservedly. You are an endless source of practical and emotional support, and I don’t know where I would be without you, the best brother I could have asked for!

And to my dear mother: I always knew you would be proud of me no matter what I decided to do in life, which meant I was free to explore my own passions and interests. Who knew an interest in sport would lead me to a PhD? You worked so hard to give me every opportunity imaginable and your love and support have been crucial in getting me to this point. Hopefully you can see that this thesis is largely a product of your hard work and effort too. This one’s for you!
ABSTRACT

Physical inactivity is a global health issue that comes at a significant cost to national health systems. Sport, recreation and health stakeholders are all interested in encouraging people to participate in different forms of activity. Yet, when examining influences on ‘participation’, literature spans a variety of disciplines including health and behavioural sciences, sport sciences, sport and leisure management and, in some cases, transport. This, in many respects, results in fragmented, discipline-specific understandings of participation influences.

Cycling presents as a particularly complex form of physical activity that engages and has implications for stakeholders from areas such as sport, recreation, health, transport and the environment. Given that, this thesis examines ‘participation’ with a focus on cycling. Women’s cycling participation in Australia forms the specific research context, with an emphasis on the role of cycling education in encouraging Australian women to participate in different forms of cycling. Australian women exhibit low rates of cycling participation and existing research suggests that lack of skill and confidence, and concern regarding cycling risks, are key reasons (along with infrastructure and policies). In pursuit of a more holistic understanding with respect to participation influences (in the context of women’s cycling), the present research draws on physical activity literature, specifically socio-ecological theory (from health and behavioural science literature) and sport development concepts (from sport management literature), to propose a cross-disciplinary, integrated model which guided the present study to enhance understanding more generally.

The study aims to examine socio-ecological influences on Australian women’s cycling participation, in the context of cycling education. The exploratory nature of the research, the depth of insight (rather than breadth) desired, resulted in a qualitative method being adopted. Data collection primarily involved conducting interviews with 33 adult women from Melbourne and Sydney (64 interviews), who participated in different levels of cycling education. Courses were provided by instructors who were accredited through a national cycling education training program, AustCycle. Session observations, interviews with stakeholders and document analysis played a secondary role in data collection and analysis processes. By framing the study in the context of cycling education, issues faced by
beginner female cyclists could be examined. An emphasis was placed on understanding factors that influenced their participation in different forms of cycling and the role of education in encouraging women’s participation in Australia.

Women’s desired and reported levels of participation were examined with respect to four categories of cycling (commuter; recreational; organised, non-competitive; and organised, competitive). Influences on participation in such forms of cycling were examined and a range of factors were found to influence all forms of cycling, while other influences appeared to hold particular significance for certain forms of cycling. Women were generally motivated to cycle for exercise and health benefits and to experience feelings of enjoyment and empowerment. Participants wanted to commute by bicycle for the financial incentives, time and convenience benefits and environmental contributions. Organised, non-competitive forms of cycling were seen as attractive for social benefits, to set realistic challenges, and to manage risks by cycling with others. However, study participants saw competitive cycling as intimidating, dangerous and not for them. This appears to present a challenge for sport stakeholders with respect to cycling in its current delivery forms.

General supports and constraints on cycling participation were for the most part found to be consistent with existing research. Women were constrained by their lack of skills, confidence, knowledge and fitness; by terrain, weather, fear of traffic, and issues related to car and cyclist culture. However, the study broke down influences to identify differences between participation forms. Women were motivated to enrol in cycling education courses to improve their skills, knowledge and confidence with respect to cycling. However, their ultimate desired outcomes seemed to relate to an interest in managing cycling risks, enhancing their enjoyment of cycling and opening up new participation opportunities.

Most women reported experiencing increases in skill level, knowledge and confidence months after participating in education, with participants particularly appreciating learning how to execute basic skills such as mounting, dismounting, stopping and signalling safely and effectively. Many realised their desired outcomes of feeling less at risk, enjoying cycling more and being able to engage in new forms of participation. However, there appeared to be scope for providing additional support to women as they looked to engage more fully in different forms of cycling.
Ongoing development opportunities in non-threatening environments, beyond education sessions, seemed to be required, with existing options not being perceived as attractive or appropriate by many participants.

This research identifies opportunities for additional forms of social support to be provided to women to ease their concerns as they attempt to enter different forms of cycling. The establishment of a women’s cycling network, or hub which provides advice, support and referrals to appropriate resources, presents as an opportunity in the context of women’s cycling participation in Australia. The proposed concept would involve stakeholder collaboration with a particular emphasis on linkages between cycling retailers, education providers and social riding groups, to fully engage women and cater for their needs, with respect to participation in all forms of cycling.

The major theoretical contribution of the present study relates to the development of a cross-disciplinary conceptual framework designed to be utilised in efforts to examine issues surrounding the broad concept of ‘participation’. Moreover, this study offers insight into the under-researched area of women’s cycling participation, providing one of the first contributions with respect to understanding the role of cycling education in encouraging women to participate in different forms of cycling in Australia. Research findings and recommendations also seek to extend academic thinking in sport development. This is achieved by advocating new ways to examine existing and emerging participation issues, mapping outcomes along a continuum, and considering opportunities for stakeholder collaboration and individualised action.

The present study has implications for sport development, recreation and physical activity stakeholders as opportunities exist for collaboration to occur in the context of both research and practice. Women are an under-represented group in participation statistics across the globe. Scope exists to expand sport and recreation offerings to incorporate more flexible, informal sport options, which emphasise enjoyable social environments and minimise the competitive elements and risks associated with participation. Such offerings may be integral in more fully engaging women in active lifestyles.
# TABLE OF CONTENTS

PUBLICATIONS ....................................................................................................................... i

ACKNOWLEDGEMENTS ......................................................................................................... ii

ABSTRACT .............................................................................................................................. iv

TABLE OF CONTENTS ........................................................................................................ vii

LIST OF TABLES .................................................................................................................. xi

LIST OF FIGURES .................................................................................................................. i

CHAPTER 1: INTRODUCTION .......................................................................................... 1

1.1 Background to the Research ..................................................................................... 1
  1.1.1 Participation: A Complex Concept ................................................................. 2
  1.1.2 Cycling Participation ....................................................................................... 4
  1.1.3 Research Collaboration Opportunities ......................................................... 5
  1.1.4 Towards an Integrated Conceptual Framework ............................................. 6

1.2 The Research Context: Australia, Cycling, Women and Education ..................... 8

1.3 Research Aim and Questions ................................................................................... 9

1.4 Justification for the Research: Original Contributions ......................................... 10
  1.4.1 Theoretical Justification and Contributions ................................................... 10
  1.4.2 Practical Justification and Contributions ....................................................... 12

1.5 Research Design ....................................................................................................... 14

1.6 Delimitations and Limitations ................................................................................. 15

1.7 Thesis Outline ......................................................................................................... 17

1.8 Summary .................................................................................................................. 19

CHAPTER 2: LITERATURE REVIEW ................................................................................. 20

2.1 Introduction ................................................................................................................. 20

2.2 Participation: A Complex Concept ......................................................................... 20
CHAPTER 4: CONTEXT - PROVIDERS, PARTICIPANTS AND CYCLING BEHAVIOUR. 119

4.1 Melbourne and Sydney Providers ............................................................. 120

4.2 Participation in Cycling: Desired and Reported Participation .............. 123

4.3 Summary .................................................................................................... 126

CHAPTER 5: INFLUENCES ON WOMEN’S CYCLING PARTICIPATION .......... 127

5.1 General Cycling Participation Influences: Common to Different Forms ... 132

5.1.1 Motivations ............................................................................................. 132

5.1.2 Supports and Constraints ........................................................................ 141

5.2 Recreational Cycling Participation Influences ......................................... 156

5.3 Commuter Cycling Participation Influences ............................................ 162

5.4 Organised Cycling Participation Influences ........................................... 173

5.5 Summary .................................................................................................... 183

CHAPTER 6: CYCLING EDUCATION AND REQUIRED SUPPORT ............... 186

6.1 Motivations, Desired Outcomes and Expectations ................................. 186

6.2 Experiences in Courses and Important Course Features ....................... 197

6.2.1 Course Providers and Teachers ............................................................. 204

6.3 Participant Outcomes: Perceptions .......................................................... 208

6.4 Supports for and Constraints on Women’s Cycling: Beyond Education ... 228

6.4.1 Issues Observed through the Research Process .................................. 238

6.5 Considering Action to Support Women’s Participation ........................... 241

6.6 Summary .................................................................................................... 243

CHAPTER 7: CONCLUSIONS AND IMPLICATIONS ........................................ 246

7.1 Introduction ............................................................................................... 246

7.2 Reflecting on the Research Problem ......................................................... 247

7.2.1 Influences on Cycling Participation ....................................................... 247
7.2.2 Cycling Education ................................................................. 249

7.3 Strategic Recommendations: Encouraging Women’s Cycling in Australia 251

7.3.1 Expanding on Recommendations: Considering Stakeholder Action...... 258

7.4 Implications for Practice: Informed by the Conceptual Framework .......... 264

7.5 Theoretical Contributions and Implications ........................................ 269

7.6 Implications for Method ................................................................ 271

7.7 Study Limitations ....................................................................... 272

7.8 Future Research Opportunities ...................................................... 275

7.9 Concluding Statement .................................................................. 276

REFERENCES .................................................................................... 278

APPENDICES ..................................................................................... 299
LIST OF TABLES

Table 1.1: Results and Discussion Chapters – Structure and Focus ................................. 19
Table 2.1: A Conceptualisation of Key Definitions .............................................................. 22
Table 2.2: Australian Cycling Delivery - Relevant Stakeholders ........................................ 46
Table 2.3: Socio-Ecological Influences - Physical Activity Participation .......................... 70
Table 3.1: Key Considerations in Designing Qualitative Research ..................................... 90
Table 3.2: AustCycle - Additional Information .................................................................. 94
Table 3.3: AustCycle Education Course Levels .................................................................. 98
Table 3.4: Interview Sample ............................................................................................. 98
Table 3.5: Session Observations - Details ........................................................................ 102
Table 3.6 Interview Guide Outline .................................................................................... 104
Table 3.7: Qualitative Data Analysis - A Framework ......................................................... 108
Table 3.8: Topics/Themes Considered .............................................................................. 112
Table 3.9: Eight “Big Tent” Criteria for Excellent Qualitative Research .......................... 117
Table 4.1: Participant Details ............................................................................................ 119
Table 4.2: Courses Offered by Providers ......................................................................... 122
Table 4.3: Types of Cycling Participation ......................................................................... 123
Table 4.4: Desired and Reported Participation – Interview One ...................................... 124
Table 5.1: Socio-Ecological Factors - Key to Classification ............................................. 129
Table 5.2: Influences on Participation .............................................................................. 130
Table 5.3: Motivations for Cycling Participation ............................................................... 131
Table 5.4: Competitive Cycling Perceptions ...................................................................... 175
Table 6.1: Motivations for Education Enrolment - Level Specific Responses ................. 187
Table 6.2: Motivations for Education - Comments Regarding Confidence ..................... 189
Table 6.3: Important Course Features - Level Specific ..................................................... 197
Table 6.4: Skill and Knowledge Development .................................................................. 200
Table 6.5: Skill Level Comparisons ................................................................................ 202
Table 6.6: Participant Exposure to Education Instructors ................................................ 205
Table 6.7: Desired and Reported Participation - Pre-Education and Follow-Up .............. 218
Table 6.8: Comments Regarding Course Recommendation ............................................ 226
Table 6.9: Cycling Education Perceived Outcomes (Socio-Ecological Influences) ....... 227
Table 6.10: Major Socio-Ecological Constraints at Follow-Up ......................................... 229
Table 6.11: Possible Actions to Support Women’s Cycling Participation ......................... 242
Table 7.1: Socio-Ecological Influence - Different Forms of Cycling ............................... 260
Table 7.2: Stakeholder Involvement .................................................................................. 261
Table 7.3: Strategic Recommendations - Guided by the Conceptual Framework ........... 263
LIST OF FIGURES

Figure 2.1: Literature Review - Overview of Participation Literature Considered ..... 20
Figure 2.2: Socio-Ecological Model - Three Levels ..................................................... 67
Figure 2.3: Socio-Ecological Model - Cycling Behaviour ............................................. 69
Figure 2.4: Integrated Conceptual Framework .......................................................... 76
Figure 3.1: Data Collection - Timing and Approach .................................................. 103
Figure 6.1: Summary of Motivations for Cycling Education Enrolment ................. 195
Figure 6.2: Perceived Cycling Education Outcomes ............................................... 209
Figure 6.3: Comparing Desired Participation with Reported Participation ............ 219
Figure 6.4: Changes in Cycling Participation Frequency (Follow-Up Interview) ...... 220
Figure 6.5: Cycling Education - Summary of Perceived Outcomes ....................... 225
Figure 6.6: Cycling Education Outcomes - Influence of Socio-Ecological Factors ... 230
Figure 7.1: Supporting Women’s Participation: Recommended Action ................. 255
CHAPTER 1: INTRODUCTION

1.1 BACKGROUND TO THE RESEARCH

Physical inactivity has been identified as the fourth leading risk factor for non-communicable diseases such as cardio-vascular disease, Type 2 diabetes and some forms of cancer (World Health Organisation, 2009, 2010). Inactivity presents as a significant global health issue which comes at a substantial cost to national health systems (Hallal et al., 2012; Kohl et al., 2012), and low levels of physical activity amongst women and people from higher-income countries are of particular concern (Hallal et al., 2012). While this is an international issue (Hallal et al., 2012; Kohl et al., 2012; World Health Organisation, 2004, 2009), Australian statistics are of particular interest given the country’s reputation as an active sporting nation (Commonwealth of Australia, 2010), with a rich history of success on the international stage (Australian Sports Commission, 2012). Currently, sport and physical activity participation rates do not reflect this depiction of the Australian lifestyle (Hoye & Nicholson, 2011), with lower than desired rates of activity having consistently been observed (Australian Bureau of Statistics, 2009b, 2012; Standing Committee on Recreation and Sport, 2010).

It is well established that physical activity is beneficial for health (World Health Organisation, 2010). When examining benefits for women specifically, those who participate in regular physical activity have been found to experience improved health outcomes (Bernstein et al., 2005; Bucksch, 2005; John, Horn-Ross, & Koo, 2003; Kujala, Kaprio, Sarna, & Koskenvuo, 1998; Lee, 2003; Macera, Hootman, & Sniezek, 2003; Macera & Powell, 2001; Manson et al., 1999; McTiernan et al., 2003; Shephard, 1997; Steindorf, Schmidt, Kropp, & Chang-Claude, 2003). A clear need for individuals to engage in adequate levels of physical activity is thus established. Given the significant financial burden placed on taxpayers as a result of physical inactivity-related illness (Econotech, 2007; Kohl et al., 2012), this appears to be an issue that needs to be addressed in Australia.
1.1.1 Participation: A Complex Concept

A better understanding of the factors that support and constrain active lifestyles is required in efforts to identify ways to address low rates of participation in Australia. Yet, when examining factors that influence ‘participation’, it seems that relevant literature may be drawn from a variety of disciplines including health and behavioural sciences, sport sciences, sport and leisure management and, in some cases, transport literature (Rowe et al., 2013). Sallis et al. (2006) discussed four active living domains including recreation, transport, occupation and household. This indicates that physical activity may be engaged in or accumulated in a variety of contexts. Sport, recreation, active transport and incidental activity all take on different meanings in the context of understanding participation. As such, knowledge sharing and collaboration across disciplines may be beneficial in efforts to better understand participation.

Macniven, Bauman, and Abouzeid (2012) suggested that in higher income countries (such as Australia), leisure-time physical activity participation typically represents a greater proportion of total physical activity levels than in lower income countries. In seeking to better understand participation influences, it is acknowledged that sport and recreation participation form potential components of activity (Casey, Payne, & Eime, 2012; Henderson, 2009). Yet defining terms such as sport, physical activity and participation has been considered a difficult task (Australian Bureau of Statistics, 2008; Berger, O’Reilly, Parent, Séguin, & Hernandez, 2008; Henderson, 2009).

In Australia, participation is measured by different stakeholders, for a range of purposes. Leisure-time participation has been measured by the Australian Sports Commission in conjunction with state and territory agencies responsible for sport and recreation (Standing Committee on Recreation and Sport, 2010). Participation is also often considered by the Australian Bureau of Statistics through national health surveys, travel surveys and the Multi-Purpose Household Survey (MPHS). A broad range of public and private stakeholders are interested in participation, further
complicating the landscape and limiting the potential for a detailed, comprehensive understanding to be gained. Different forms of participation engage different stakeholder groups; however, it seems that increased levels of activity amongst the Australian population would serve a higher purpose related to community health. As such, opportunities for collaboration and strategically aligned action through enhanced understanding seem to exist.

Within the health and behavioural science domain, numerous models have been developed to examine physical activity participation, models which draw on psychological and socio-cultural principles (Glanz, Rimer, & Viswanath, 2008; Sallis, Owen, & Fisher, 2008). Researchers have explored frameworks relevant to physically active leisure participation (Beaton & Funk, 2008; Beaton, Funk, & Alexandris, 2009). Women’s participation has also specifically been examined from a leisure management perspective, drawing on and developing relevant theoretical frameworks (Dixon, 2009; Henderson, 1990a, 1990b, 1996; Henderson & Bialeschki, 1991; Henderson & Hickerson, 2007; Henderson, Hodges, & Kivel, 2002; Shaw, 1994).

Despite the implicit participation focus (Green, 2005; Shilbury, Sotiriadou, & Green, 2008), some would argue that less developed understandings exist in sport development contexts (Berger et al., 2008). And generally speaking, from a theoretical perspective, models of participation in the social science domains are limited in contrast to those seen in the health sciences (Alexandris, Zahariadis, Tsorbatzoudis, & Grouios, 2002; Beaton & Funk, 2008; Giles-Corti, Timperio, Bull, & Pikora, 2005; Henderson, Presley, & Bialeschki, 2004). This perhaps indicates that more comprehensive understandings could be gained through knowledge sharing and cross-disciplinary collaboration, particularly toward advancing sport management and development knowledge in this regard. Cycling presents as a particularly complex example of a participation problem, as highlighted in the following section.
1.1.2 Cycling Participation

Cycling is a flexible form of physical activity which offers benefits for a diverse range of population groups (Bauman et al., 2008; Garrard, Crawford, & Hakman, 2006). Cycling can be engaged in as a form of transport, sport and/or recreation. “It has unique potential to support an active lifestyle through recreational cycling and through active transport, when it could be integrated into daily travel routines” (Rissel, Merom, et al., 2010, p. 267). As a moderate-vigorous-intensity, low impact form of physical activity, it has the potential to contribute to health agendas previously discussed in addition to social agendas such as reducing greenhouse gas emissions and enhancing social connectedness (Bauman et al., 2008). As such, cycling participation appears to provide an example of a complex form of physical activity participation which has implications for a wide range of stakeholders.

Cycling participation rates vary across the globe (Buehler & Pucher, 2012; Pucher, Buehler, Bassett, & Dannenberg, 2010; Pucher, Garrard, & Greaves, 2010). However, significant room for participation growth exists in Australia (Austroads, 2011b; Buehler & Pucher, 2012; Standing Committee on Recreation and Sport, 2010). Australian women are far less likely to cycle than men (Austroads, 2011b; Buehler & Pucher, 2012; Standing Committee on Recreation and Sport, 2010), a trend suggested to be typical of countries with low overall rates of cycling participation (Garrard, 2003; Garrard et al., 2006; Garrard, Handy, & Dill, 2012; Garrard, Rose, & Sing, 2008; Pucher & Buehler, 2008). As such, Australian women’s cycling participation forms a key focus of the present study.

Influences on women’s cycling participation have been considered in previous research (Cycling Promotion Fund & Heart Foundation, 2013; Daley, Rissel, & Lloyd, 2007; Emond, Tang, & Handy, 2009; Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012; Garrard et al., 2008; Krizek, Johnson, & Tilahun, 2005). However, opportunity exist to expand such literature (Emond et al., 2009; Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012; Krizek et al., 2005), with women’s cycling having been described as “an often-glossed-over but important phenomenon”
Existing research generally suggests that women report key cycling barriers as being related to poor cycling skills, lack of confidence, having a fear of cycling near traffic and a generally heightened awareness of cycling-related risks. Literature related to cycling participation is generally drawn from physical activity and transport research. Furthermore, socio-ecological approaches (derived from health and behavioural sciences research) have often been used to explore influences on cycling participation (Bauman et al., 2008; Daley et al., 2007; Emond et al., 2009; Garrard et al., 2006).

Cycling research generally considers transport and/or recreational cycling, but limited attention has been paid to understanding how influences on different forms of cycling vary (Daley et al., 2007; Garrard et al., 2012). Given that research suggests that studies which focus on context-specific participation (i.e., transport versus recreational cycling) can offer more insights than general classifications of activity, i.e., cycling generally (Bauman et al., 2012; Giles-Corti et al., 2005; Owen, Humpel, Leslie, Bauman, & Sallis, 2004; Pikora, Giles-Corti, Bull, Jamrozik, & Donovan, 2003; Saelens, Sallis, & Frank, 2003), it seems that gaining such an understanding would be beneficial with respect to cycling. Yet, different forms of participation (sport, recreation, transport) fall into different discipline areas, further highlighting the participation complexities noted in the preceding section.

### 1.1.3 Research Collaboration Opportunities

The challenges associated with examining and understanding participation influences outlined to this point suggest that cross-disciplinary research collaboration opportunities exist in pursuit of more holistic, detailed understandings. Moreover, Henderson (2009) noted that over the past 20 years, sport management research has focused more heavily on sport as spectatorship or entertainment than on how sport can engage the population in mass participation. Yet, sport organisations are increasingly expected to work towards health-driven agendas (Casey et al., 2012) with the role of sport development officers also encompassing such a focus (Bloyce, Smith, Mead, & Morris, 2008). Australian
research has suggested that sport will increasingly be used as a vehicle to achieve social objectives, including health, in years to come (Hajkowicz, Cook, Wilhelmseder, & Boughen, 2013). Australian sport policy also considers how sport can contribute to society, particularly in light of current declines in participation (Commonwealth of Australia, 2010). Furthermore, in a review of correlates of physical activity participation, Bauman et al. (2012) acknowledged the importance of organised sport structures and recreation facilities in physical activity participation across lifespans.

The inextricable links between sport, physical activity and health appear to provide opportunities for sport management researchers to focus on gaining an understanding of factors that impact sport and recreation participation as a form of physical activity. This broad expanse of literature seems to lack continuity and consistency, making it difficult to join a ‘conversation’ on participation, per se (Rowe et al., 2013). Given this, and the observation that sport management research could benefit from an increased focus on participation (Henderson, 2009), a cross-disciplinary, integrated approach to understanding participation influences is considered a valuable viewpoint for the present study.

1.1.4 Towards an Integrated Conceptual Framework

Dixon (2009) effectively brought together strands of exercise psychology literature and women’s leisure participation literature to take a cross-disciplinary approach to examining physical activity and sport programming issues faced by working mothers. The aforementioned study reinforced the need for cross-disciplinary thinking with respect to participation, and demonstrated that such an approach could be effectively utilised. The present study seeks to identify ways to bring together two bodies of knowledge in pursuit of a more complete understanding of participation influences, through the development of an integrated conceptual framework. Opportunities to advance thinking in sport development (a research discipline with roots in sport management literature), by drawing on concepts from
physical activity research (related to health and behavioural sciences literature) are identified.

Socio-ecological theory, drawn physical activity research, provided a logical framework to utilise in the present study, given its previous application in cycling participation research. Further support for the application of socio-ecological theory in the context of sport and active recreation research was provided by Henderson (2009), Beaton and Funk (2008), and Henderson and Bialeschki (2005), who suggested that ecological approaches provide sport management researchers with relevant frameworks for examining sport participation at different levels. Casey, Eime, Payne, and Harvey (2009) used the aforementioned model to examine sport and physical activity participation amongst rural adolescent girls in Victoria, Australia.

Overlaps between thinking related to socio-ecological theory (Sallis & Owen, 1997; Stokols, 1996) and sport development were identified and are presented in Chapter Two, in pursuit of an integrated conceptual framework to advance thinking in participation contexts. Concepts related to community sport development (Hylton & Totten, 2008), were also drawn on in developing a conceptual framework to guide the present study. By so doing, the researcher seeks to bring together two disconnected yet related bodies of research to highlight opportunities for collaboration and to advance thinking, particularly in the context of sport development research, thus, encouraging cross-disciplinary approaches to understanding complex issues associated with participation. The framework specifically suits the research context, which relates to women’s cycling participation in Australia. However, there is also scope for the framework to be used in alternate research contexts to assist researchers to gain a more holistic understanding of participation issues related to sport, recreation and physical activity.
1.2 THE RESEARCH CONTEXT: AUSTRALIA, CYCLING, WOMEN AND EDUCATION

In preceding sections, participation was identified as a complex issue and specific reference was made to cycling participation as an example. Australian rates of cycling participation were noted as lower than in other parts of the world (Austroads, 2011b; Buehler & Pucher, 2012; Pucher, Buehler, et al., 2010; Pucher, Garrard, et al., 2010; Standing Committee on Recreation and Sport, 2010). Australian women were found to cycle less than Australian men (Austroads, 2011b; Buehler & Pucher, 2012; Standing Committee on Recreation and Sport, 2010). This was suggested to be a consequence of a range of barriers reported by women with respect to their lack of cycling skills, confidence and general concern for safety (Cycling Promotion Fund & Heart Foundation, 2013; Daley et al., 2007; Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012; Garrard et al., 2008; Krizek et al., 2005). In some parts of Europe, women cycle as often as men, with environments being designed to support participation (Pucher & Buehler, 2008). This suggests that women can be encouraged to cycle under the right conditions.

Cycling education and training presents as an intervention which could offer assistance to Australian women. However, limited evidence exists to demonstrate the potential role of education in supporting women’s cycling participation in Australia (Pucher, Dill, & Handy, 2010; Rissel & Garrard, 2006; Yang, Sahlqvist, McMinn, Griffin, & Ogilvie, 2010). Given the emergence of an Australian cycling education program, AustCycle, the present study seeks to examine women’s participation in Australia using cycling education as a specific context to provide a focal point and assist with sampling and recruitment. Furthermore, by focusing on women who participate in cycling education programs, an additional dimension is added to the research by examining how women respond to such programs. This helps to provide a more detailed level of understanding with respect to the role of cycling education in encouraging women’s participation in different forms of cycling. As such, women who participated in cycling education courses in Melbourne and Sydney form the sample for the present study.
1.3 RESEARCH AIM AND QUESTIONS

A series of issues and research gaps were identified in preceding sections. Women’s cycling participation was highlighted as an area requiring additional research attention. Variation in influences on participation, depending on the form of cycling, was also suggested to be an aspect in which knowledge could be further advanced. Cycling education was discussed as a potential intervention that could assist in addressing some of the key barriers reported by women, with respect to cycling (skills and confidence); however, little research has examined the role of education programs in encouraging women’s participation. Within the framework of the present study, which integrates socio-ecological theory with sport development concepts, the aim of the present study is to:

*Examine socio-ecological influences on Australian women’s cycling participation, in the context of cycling education.*

To examine such issues, four research questions are posed. These questions seek to address specific research gaps and further support the overall research aim:

RQ1: What factors influence women’s participation in different forms of cycling?

RQ 2: Why do women enrol in cycling education courses?

RQ 3: What perceived outcomes do female cycling education participants report in response to course participation?

RQ 4: What additional strategies are required to increase women’s participation in different forms of cycling?

Further explanation and justification regarding the development of research questions is provided in Chapter Three. To briefly summarise, the first question seeks to bring about a more developed understanding of influences on women’s cycling participation, with a specific emphasis on understanding how influences vary, depending on the form of participation under consideration. The second and third research questions are designed to guide an examination of the role of cycling education in encouraging women’s participation. While it can be assumed that women will derive some benefit from experiencing education, given the limited
research in this regard, it is unclear how such outcomes might be achieved or what additional supports might be required. Therefore, the final research question seeks to identify those socio-ecological factors which continue to constrain women’s participation in specific forms of cycling, after they have experienced education. This is relevant to consider given that such factors will likely require targeted action if education is to be effectively used to encourage women’s participation. Using a cross-disciplinary, integrated conceptual framework to guide the research, these four research questions provide structure to the study in pursuit of achieving the research aim.

### 1.4 JUSTIFICATION FOR THE RESEARCH: ORIGINAL CONTRIBUTIONS

#### 1.4.1 Theoretical Justification and Contributions

Theoretical justification for the research has been drawn from several sources. The first relates to the complexities associated with the participation landscape. Opportunities were identified for sport development research (as a branch of sport management research) to look to other discipline areas to advance thinking with respect to participation. Henderson (2009) and Beaton and Funk (2008) considered the role of physical activity models in the context of sport and recreation participation research. Henderson (2009) suggested that such models “may have foundations to offer in considering further how sports can be a contributor to healthier living and how sports organisations might better develop programs and market sports that can promote physical activity for greater numbers of people” (p. 62). Yet limited progress appears to have been made in this regard.

The theoretical contribution of this thesis is largely achieved through the development of a cross-disciplinary, integrated, conceptual framework that seeks to inform thinking with respect to physically active participation. In this way, the present study examines ways in which sport and recreation participation influences can be better understood through cross-disciplinary thinking. Furthermore, advancing theory in sport development by drawing on an established model from a related discipline, demonstrates how others can achieve theoretical advancement
by searching for relevant concepts from related discipline areas. As such, the present study aims to guide and stimulate further thinking, toward conceptual advancement in participation research. Moreover, this research contributes to the sport management literature by providing a model to consider in efforts to explore opportunities for sport and recreation to engage the population in active behaviours (Henderson, 2009).

The second theoretical justification for the research relates to extending the limited body of literature focusing on women’s cycling participation. While some literature related to influences on women’s cycling participation was identified, gaps and opportunities for further development and extension were found to exist (Emond et al., 2009; Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012; Krizek et al., 2005). One specific area of the literature which requires further extension relates to gaining an understanding as to how influences vary, depending on the form of cycling participation under consideration (Daley et al., 2007; Garrard et al., 2012). Giles-Corti et al. (2005) highlighted the value in examining context specific participation influences (i.e., cycling for transport as opposed to cycling for recreation). Yet existing research appears to generally focus on transport and/or recreational cycling influences alone, with limited comparative research identified, and room for organised forms of cycling to be considered further. As such, the present study seeks to advance an understanding of how influences on cycling participation vary, depending on type of participation.

The third theoretical justification for the research relates to cycling education as an intervention. In three systematic literature reviews, focused upon existing cycling intervention research, very limited evidence was discovered with respect to cycling education as an intervention to encourage cycling participation (Pucher, Dill, et al., 2010; Rissel & Garrard, 2006; Yang et al., 2010). Yet cycling education (and therefore skill development) appears to present as a logical intervention to address the barriers reported by women. Furthermore, research suggests that Australian women think cycling education should be provided by governments (Cycling Promotion Fund & Heart Foundation, 2013), and cycling education features as a
recommendation in a key Australian cycling report (Bauman et al., 2008) and in the current Australian cycling strategy (Austroads, 2010). The present study is believed to be the first example of academic research that examines the role of cycling education in encouraging women’s cycling participation with a focus on outcomes related to different forms of cycling.

Green (2005) suggested that opportunities for theoretical advancement exist in the sport development literature. The present study responds to this observation and specific gaps identified in the literature. Overall, through cross-disciplinary thinking in cycling participation research, the present study seeks to better understand influences on women’s participation in different forms of cycling through examining cycling education motivations and outcomes.

1.4.2 Practical Justification and Contributions

There are several key issues related to the research that are practical in nature. The first issue identified is that global levels of physical inactivity are of major concern with respect to population health (Bauman et al., 2012; Hallal et al., 2012; Kohl et al., 2012; Lee et al., 2012; Macniven et al., 2012; World Health Organisation, 2009). It is noted that physical activity levels in Australia exhibit substantial room for growth, with the traditional active lifestyle synonymous with Australians no longer being observed in the participation data (Australian Bureau of Statistics, 2009b, 2012; Standing Committee on Recreation and Sport, 2010). Women’s activity levels are suggested to be of particular concern.

Cycling appears to offer a way to address physical inactivity on multiple levels, given the accessibility and versatility of the activity. Yet women’s cycling participation rates in Australia are particularly low when compared with that of Australian men (Austroads, 2011b; Standing Committee on Recreation and Sport, 2010) and with participation of women in countries where high rates of overall participation are observed (Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012; Garrard et al., 2008; Pucher & Buehler, 2008). The present study seeks to examine women’s cycling participation for the purpose of better understanding factors that motivate,
support and constrain women’s cycling participation in Australia. Given that the present study focuses on multiple forms of cycling, a key intention is to provide recommendations and consider implications for specific stakeholder groups. That is, by examining influences common to all forms of cycling, and those specific to different forms of cycling, strategic collaborative and individualised stakeholder action may be recommended.

This approach appears to align with current Australian sport policy which advocates stakeholder collaboration for whole-of-sport objectives. That is, to support elite performance in sport, right through to using sport as a vehicle for achieving social objectives such as increased activity levels (Commonwealth of Australia, 2010, 2011). From a practical standpoint, such recommendations could allow strategic collaborative and individualised stakeholder action to be recommended to facilitate more coordinated action to target issues identified. Such outcomes provide a practical contribution in the context of women’s participation and the final chapter presents conclusions and implications of the research relevant to women’s participation in Australia more generally.

Research suggests that while logical opportunities exist for sport to contribute to health-related agendas, sport organisations are often faced with challenges as they work toward health-related objectives (Casey, Payne, & Eime, 2009; Casey et al., 2012; Casey, Payne, Eime, & Brown, 2009). This is particularly the case when sport delivery is considered a more immediate and key responsibility than health outcomes, and when resource constraints limit capacity for action. As such, the present study further seeks to contribute to practice by encouraging strategic stakeholder collaboration in efforts to work towards sport participation as a means of achieving health-related objectives (such as increased population physical activity levels). While a challenging area to address practically, the research notes a range of opportunities for stakeholder collaboration and/or resource sharing which may offer assistance, given that resource constraints may inhibit the capacity to achieve health-related participation objectives (Casey, Payne, & Eime, 2009; Casey et al., 2012; Casey, Payne, Eime, et al., 2009).
1.5 RESEARCH DESIGN

This research involves a complex set of issues related to participation and a desire to develop and apply an integrated, cross-disciplinary, conceptual framework, to examine an under-researched area. Given the complexities associated with the research problem and context, and the desire to gain a deep-level understanding of the phenomenon of interest, a qualitative research approach is taken. Daley et al. (2007) noted that limited qualitative research exists focusing on people’s thoughts about cycling, further reinforcing opportunities in this regard. In the present qualitative study, particular reference is made to the constructivist-interpretive paradigm (Denzin & Lincoln, 2000, 2005) which suits the nature of the research problem and serves as the predominant research philosophy.

A general qualitative research design is followed. While a range of established qualitative research methods have been described (Creswell, 2007, 2013; Stake, 2010), Yin (2011) suggested that high-quality research can be conducted with a flexible design, under the general labels of ‘field-based study’ or ‘qualitative research’ without there being a need to follow a predetermined method. Thus, a flexible research design was shaped to suit the nature of the research issue and context.

To examine influences on women’s cycling participation, the setting or context of cycling education programs was selected. A national cycling education program was identified (AustCycle), and used to assist with sampling and participant recruitment. Adult, female, AustCycle education participants form the smallest, most significant unit of analysis. A nested arrangement is used where providers (course operators) form a broader level unit of data analysis, with individual participants embedded as a narrower unit. Depth rather than breadth is sought in this research. Two providers (one in Melbourne, one in Sydney) were selected and participants were drawn from different regions across these two cities.

Data were collected through session observations, interviews with participants, providers and stakeholders, and analysis of documentation. The work of Miles and
Huberman (1994), Yin (2011) and Stake (2010) provided guidance with respect to data analysis where a process of compiling, disassembling, reassembling, interpreting and concluding was followed (Yin, 2011). To clarify, the data analysis process involved the researcher reading transcripts and documents, coding individual documents (multiple stages) and creating memos, comparing sources and codes (utilising matrices), interpreting codes and findings, reporting results and drawing conclusions. Literature and research questions informed both the collection and analysis of data, although, emergent themes were explored and considered at all stages of the research process. Findings are presented in Chapters Four to Six, where results and discussion are structured around the four research questions.

1.6 DELIMITATIONS AND LIMITATIONS

In light of practical constraints, a series of delimitations related to scope were defined. First, the concept of cycling education is examined by focusing on sessions operated by providers accredited through the AustCycle program (see Chapter Three). By so doing, participants could be drawn from different courses operated in various areas, with a level of comparison possible due to the framework provided by a national accreditation program. Furthermore, given that program content was designed to support entry level participants looking to build cycling skills, perceptions of entry level women, who generally lack skills and confidence, constitute the sample.

While the study seeks to understand cycling participation influences of relevance to Australian women, given the depth of understanding required and the complexities associated with the research context, only a limited number of participants could be recruited. As such, the researcher limited the study to women enrolled in education courses offered by one provider in Melbourne and one in Sydney. These two cities were selected as they are Australia’s two major cities and the researcher’s home location (Melbourne) facilitated a more detailed examination of participants in one such location. Furthermore, a comparative analysis of the two cities (Melbourne
and Sydney) with respect to cycling conditions was provided by Pucher, Garrard, et al. (2010), which facilitated an understanding of contextual information.

The final delimitation relates to forms of cycling. While the study seeks to examine a range of different forms of cycling, the fact that AustCycle courses are focused on bike-path and road-oriented cycling means that track cycling, mountain biking and BMX riding are not considered in the present study. In addition to such delimitations, a series of limitations should also be noted. Such limitations are discussed in more detail in Chapter Seven, but are worth introducing at this stage.

Study limitations were generally related to the complexities associated with the research process. As will be outlined in Chapter Three, session observations and multiple interviews were conducted with participants. The research would have benefitted from being able to interview participants prior to their participation in cycling education courses. However, this was not deemed possible through discussions with course providers and through early attempts to do so. Furthermore, issues related to session observations being conducted in Sydney resulted in all session observations taking place in Melbourne. The consistency in course aspects and approaches taken by Melbourne and Sydney providers (similar level courses, progression points, links with local councils), meant that Melbourne session observations were able to provide adequate insight into participant experiences, although inconsistencies in data collection approaches in the two locations presented as a study limitation.

The sometimes inconsistent follow-up timing of interviews was another limitation to be noted. That is, depending on participant availability and delay in response to interview requests, the time between interview one (days following participation) and interview two (follow-up, designed to be three months post-participation), varied in some cases up to five months post-participation. Again, given the qualitative, detailed nature of the study the researcher was able to moderate the impact of this limitation by asking participants to reflect on the changes throughout
the period considered, rather than a snapshot of the current time period being the only focus.

A final limitation was related to data analysis coding procedures as coding was primarily conducted by one researcher. While a seconder coder would have ideally been used, the volume of data collected and the nature of PhD research meant that this was not an option available in the present study. Rigorous methods of data collection and analysis were followed to minimise the impact of this limitation, as is discussed in Chapter Three.

1.7 THESIS OUTLINE

Chapter One provided the rationale for the present study, outlining the importance of the study and justifying decisions made. A general overview of concepts considered in the thesis was provided with the intention of orienting the reader for the remaining chapters. Chapter Two reviews literature relevant to the issue of women’s cycling participation in Australia. Synthesising literature from a number of discipline areas, with a particular focus on physical activity and sport development research, the chapter builds to present a cross-disciplinary, integrated conceptual framework which was developed to guide the present study. The research aim was stated earlier in the chapter and is further discussed at the conclusion of Chapter Two.

Four specific research questions are used to provide clear focal points for the present study (outlined earlier). Further consideration of such questions takes place at the beginning of Chapter Three. The research philosophy, constructivist-interpretivism is then considered, with discussion related to the relevance of the aforementioned paradigm in the context of the present study, then included. Qualitative methods are considered, with further explanation as to the appropriateness of a qualitative approach in the present study. The chapter then outlines the research processes followed concerning sampling, data collection and
data analysis. At the conclusion of Chapter Three, a consideration of ethics, quality and credibility is provided, with particular reference to qualitative research.

As demonstrated in Table 1.1, results and discussion are presented in Chapters Four, Five, and Six, with Chapter Seven providing practical and theoretical implications and conclusions. Each chapter focuses on addressing one or more of the research questions. Chapter Four provides details with respect to the research context, participant cycling behaviour and desires. Chapter Five presents results and discussion with respect to socio-ecological influences impacting women’s cycling participation in Australia, with an emphasis on women’s perceptions relevant to different forms of cycling. Chapter Six addresses the three research questions which relate to cycling education motivations and outcomes, and additional action required to support women’s participation. This is achieved by discussing issues that women suggested prevented them from participating in different forms of cycling, beyond education sessions.

Such findings set the scene for implications and recommendations to be considered in Chapter Seven, which focuses on the relevance of the research results and the development of a cross-disciplinary conceptual framework, in the context of women’s cycling participation in Australia, and women’s participation more broadly. Chapter Seven concludes with a discussion of study limitations and opportunities for future research in response to the present study. While such issues are presented in an independent chapter, strong overlap exists in considering influences on participation discussed in Chapter Five, and the influence of cycling education in altering perceptions and behaviour of women.
Table 1.1: Results and Discussion Chapters – Structure and Focus

<table>
<thead>
<tr>
<th>Results Chapter</th>
<th>Focus</th>
<th>Relevant Research Question(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four</td>
<td>Research setting and context: Focusing on desired and reported participation</td>
<td>RQ 1-4 (providing context for chapters that follow)</td>
</tr>
<tr>
<td>Five</td>
<td>Influences on women’s cycling participation</td>
<td>RQ 1: What factors influence women’s participation in different forms of cycling?</td>
</tr>
</tbody>
</table>
| Six             | Cycling education: Enrolment motivations, program outcomes and additional support required | RQ 2: Why do women enrol in cycling education?  
RQ 3: What perceived outcomes do female cycling education participants report in response to course participation?  
RQ 4: What additional strategies are required to increase women’s participation in different forms of cycling? |
| Seven           | Practical and theoretical implications and conclusions                | Addresses the overall research intent, practically and theoretically.                         |

1.8 SUMMARY

Chapter One provided an overview of the thesis with a particular emphasis on establishing the research background, study aims and the four research questions formulated to guide the research inquiry. Theoretical and practical justifications for the study were provided with method, scope and study limitations also having being considered. Finally, thesis structure was outlined, thus providing a foundation for chapters to follow. Chapter Two presents a review of relevant literature, with the conceptual framework developed to guide the study presented at the conclusion of the Chapter.
CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

A review of existing literature relevant to the issue of women’s cycling participation in Australia is undertaken in this chapter to understand factors that influence participation. Given the complex nature of participation as a research issue, the chapter leads the reader through multiple layers of participation-related knowledge toward development of the cross-disciplinary, integrated conceptual framework that guided the research. Relevant literature related to health and behavioural sciences, sport management and cycling specifically is considered in the process of developing the aforementioned framework (see Figure 2.1). Cycling participation influences and interventions are examined with the rationale for using cycling education as the research context also being provided.

Figure 2.1: Literature Review - Overview of Participation Literature Considered

2.2 PARTICIPATION: A COMPLEX CONCEPT

The term ‘participation’ can be used in a broad range of contexts. When examining participation in different forms of active behaviour, research may be drawn from a variety of disciplines including health and behavioural sciences, sport sciences, sport
and leisure management and, in the case of cycling, transport literature. From a health and behavioural science perspective, influences on participation have been considered, drawing on psychological and socio-cultural principles to create relevant theoretical frameworks (Glanz et al., 2008; Sallis et al., 2008). From a sport and leisure management perspective, researchers have explored frameworks relevant to physically active leisure participation (Beaton & Funk, 2008; Beaton et al., 2009). Women’s leisure participation specifically has also been examined by a range of authors, drawing on and developing relevant theoretical frameworks (Dixon, 2009; Henderson, 1990a, 1990b, 1996; Henderson & Bialeschki, 1991; Henderson & Hickerson, 2007; Henderson et al., 2002; Shaw, 1994). Sport development research and practice, as an area of sport management, also focuses heavily on sport participation (Shilbury et al., 2008). As such, a broad and complex picture of participation appears to exist.

In Australia alone, participation has been measured by the Australian Sports Commission in conjunction with the state and territory agencies responsible for sport and recreation through annual Exercise, Recreation and Sport Surveys (ERASS). The Australian Bureau of Statistics also measures participation, through national health surveys, travel surveys and includes questions related to sport and recreation in the Multi-Purpose Household Survey (MPHS). Furthermore, public and private stakeholders also collect activity data for a range of other purposes. With so many sources of participation data in existence, the Australian Bureau of Statistics (2008) proposed a conceptual model that defines key terms such as ‘physical activity’, ‘sport’, and ‘recreation’, in the context of participation (see Table 2.1). The model was developed in an effort to enhance clarity and consistency, with such definitions being based on research and surveys related to participation. When examining these definitions it appears that a number of overlaps exist, and difficulties are noted regarding defining such terms. Furthermore, not all sport is organised, and not all recreation is non-organised.
Table 2.1: A Conceptualisation of Key Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical activity</td>
<td>• Any bodily movements performed by a muscle or group of muscles that result in an increase in energy expenditure.</td>
</tr>
<tr>
<td></td>
<td>• Physical fitness and incidental health benefits are key outcomes associated with participation in physical activity.</td>
</tr>
<tr>
<td>Sport</td>
<td>• Difficult to define in the context of measurement.</td>
</tr>
<tr>
<td></td>
<td>• Forms of physical activity that involve rules, elements of competition, physical exertion and skill and exist formally through organisations.</td>
</tr>
<tr>
<td>Physical recreation</td>
<td>• Activities that involve physical exertion or skill yet the main focus is on mental and/or physical satisfaction for the individual in their leisure time.</td>
</tr>
<tr>
<td>Organised sport and physical recreation</td>
<td>• Activities that are officially organised by a club or association (i.e., sporting club, social group, or workplace) and can vary in structure from a one-off fun-run or bush walk to a more organised, traditional sporting competition.</td>
</tr>
</tbody>
</table>

Adapted from the Australian Bureau of Statistics (2008)

In leisure management research, Beaton and Funk (2008) and Beaton et al. (2009) discuss the concept of ‘physically active leisure’ as a subset of general leisure activities. These authors conducted research in the area of participation and suggested that, similar to the Australian Bureau of Statistics (2008) which defined terms such as sport and physical recreation, the concept of physically active leisure relates to activities undertaken in leisure time that involve a moderately intense level of physical exertion. Dancing, swimming and football are proposed as activities that fit this criterion, while stamp collecting, darts and theatre-going are classified as general leisure activities. This further highlights the fact that participation is a complex domain, with a range of intricate elements, related to different activities and relevant systems of classification. When considering cycling, this activity could be classified as a form of physical activity, sport, or active recreation/physically active leisure, depending on the purpose or intent of such participation.

The definitional considerations presented above have been included with the intention of highlighting the complex landscape of participation. Despite such complexities, key Australian reports such as the ‘Future of Sport in Australia’
(Independent Sport Panel, 2009) have highlighted the need for sport-related definitions to consider physical activity and active recreation in a broad sense, given the increasing emphasis on preventative health issues in the Australian community. It appears that activities such as cycling (along with running and swimming) form a nexus between active recreational participation, sport participation and physical activity (i.e., commuter cycling). Participation may exist as a form of sport, active recreation (externally organised or self-organised), or transport. As such, a number of stakeholders across sport, health and transport become involved in the complex task of facilitating, promoting and understanding participation.

Cycling has become a topical issue in recent times as a result of climate change discussions, the increasing pace of life, and rising obesity rates (Bauman et al., 2008). This is perhaps because cycling provides opportunities for active transport, recreation and sport participation, presenting many benefits for community wellbeing. As such, it appears logical to take a cross-disciplinary approach to understanding cycling participation, drawing on theory from more than one participation domain. “Efforts to increase community-wide physical activity levels will require multi-sector action including the sport, recreation and exercise sector together with health, transport and planning” (Giles-Corti, 2006, p. 365). Two specific bodies of literature, sport management (more specifically, sport development) and physical activity are considered later in the chapter, as suitable matches to provide guidance in the present study. Before this review of literature is presented, cycling participation literature is considered in an effort to orient the reader to key considerations, influences, and research gaps that informed the present study.

2.3 CYCLING PARTICIPATION IN AUSTRALIA AND OVERSEAS

As a form of active participation, cycling is a particularly complex behaviour to understand given the range of forms of participation that exist, including commuter cycling, recreational cycling and sport-related cycling. Added to this, a complex range of variables related to individuals and the settings in which they live, work
and wish to ride can influence participation, as will be discussed further as the chapter proceeds. This section will examine participation in Australia, providing comparisons with other parts of the world, and consider cycling participation trends, cycling environments, Australian cycling strategies and relevant stakeholders.

2.3.1 Cycling Participation Trends

Establishing exact rates of cycling participation is a difficult task, largely as a consequence of the multitude of forms of participation that exist and the numerous methods used to assess rates of participation. Austroads (2010) suggested that in both an Australian and international context, there exists a “significant lack of consistent and robust data” (p. 14). However, studies that have attempted to compare rates of participation internationally suggest that cycling participation varies significantly across the globe (Buehler & Pucher, 2012; Pucher, Buehler, et al., 2010; Pucher, Garrard, et al., 2010).

In Australia, from a recreation and sport perspective, the Standing Committee on Recreation and Sport administered an annual Exercise, Recreation and Sport Survey (ERASS) from 2001 to 2010. The surveys examined the participation of Australians in physical activity for exercise, recreation or sport purposes. In the survey, the category ‘cycling’ included all forms of cycling with BMX and mountain bike riding also being considered in this category. In the last survey conducted in 2010 (Standing Committee on Recreation and Sport, 2010), cycling was the fourth most engaged-in form of physical activity (behind walking, aerobics and swimming). In the aforementioned survey, cycling participation grew steadily over the 10-year period in which it was measured, experiencing a 45 per cent growth, far surpassing swimming, which experienced a decrease in participation nationally (Standing Committee on Recreation and Sport, 2010). Yet cycling did not rate in the top 10 club-based forms of physical activity (based on total number of people participating), meaning a large proportion of participants were engaging in cycling outside of organised club structures. However, when examining regular
participation in club-based activities (more than three times per week), cycling had the third-highest rate of participation. This trend seems to suggest that while only a small proportion of cyclists are participating in club-based cycling activities, those who do so participate frequently.

When examining participation data further, a clear disparity in representation across gender groups can be observed. Of participants who reported any level or type of participation in cycling, 36 per cent were female (Standing Committee on Recreation and Sport, 2010). This is a trend that has been observed in previous surveys (Standing Committee on Recreation and Sport, 2008, 2009), with male cycling participants consistently outnumbering females. Research suggests that in countries with higher overall rates of cycling participation, a greater proportion of participants are female when compared with countries recording lower overall rates of participation (Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012; Garrard et al., 2008; Pucher & Buehler, 2008). In such studies, Australia has been noted as a country with low overall participation rates in comparison to other parts of the world. As such, the gender disparity outlined is unsurprising.

In addition to the ERASS data, a national cycling participation survey was conducted by Austroads (2011b) in an effort to gather baseline rates of participation to be used in establishing the impact of the national cycling strategy for 2011-2016 (Austroads, 2010). A total of 9,661 households were surveyed, consisting of 24,858 individuals. Respondents were asked when they and other members of their household had last ridden a bicycle, and for those having ridden in the past week, how many times and for what purposes they had ridden. The results found that 11 per cent of the adult population had ridden in the previous week and 30 per cent had ridden at least once in the previous year. When examining gender differences, 22 per cent of males reported cycling in the previous week, in contrast to 14 per cent of females. Further to this, in the past month, 32 per cent of males and 21 per cent of females had ridden; and in the past year, 46 per cent of males, and 33 per cent of females.
Participants were also asked to distinguish between their transport- and non-transport-related cycling. Thirty-five per cent of participants who had cycled in the past seven days had done so for transport (Austroads, 2011b). Greater levels of transport-related cycling were seen in states which had higher rates of general participation. While sport, recreation and transport-related cycling participation have been measured in an Australian context, comparing participation rates with other countries is a difficult task as no internationally standard measures are applied (Austroads, 2010). The most common comparisons are drawn using transport-related data, with a number of studies comparing Australia’s participation in transport-related cycling with participation in other parts of the world (Buehler & Pucher, 2012). As such, transport-related data will be used in this discussion to highlight similarities and differences in cycling trends in Australia and other countries, given that this is the most consistently measured form of cycling.

In an examination of participation trends in Europe, North America and Australia (Buehler & Pucher, 2012), a range of documents including travel surveys, transport reports and census data (amongst other reports) were reviewed to determine trends of participation in these parts of the world. Australia, Canada and the United States of America (USA) were found to have the lowest rates of bike share of trips at approximately one per cent. Bike share was suggested to refer to the daily proportion of trips made by bicycle (Buehler & Pucher, 2012). The United Kingdom (UK) and Ireland had a two per cent bike share overall and the Netherlands (26 per cent), Denmark (18 per cent), and Germany, Finland, Sweden and Belgium (at 10 per cent each) recorded the highest proportion of bike share of trips. While useful in drawing attention to participation differences across the globe, such statistics should be treated with caution, given the inconsistencies that exist with respect to measurement tools, parameters and data collection techniques used. What this data seeks to highlight is that in Australia and North America, cycling participation is significantly less prevalent than in parts of Europe.

When examining cycling participation in Australian cities, the National Cycling Participation Survey (Austroads, 2011b) found that the Northern Territory (52 per
cent), Australian Capital Territory (46 per cent), and Western Australia (45 per cent) recorded participation rates significantly higher than the national average (40 per cent). These statistics represent the proportion of people who reported cycling in the past year. The proportion of people who reported cycling in the past seven days followed a similar trend. New South Wales recorded the lowest rates of participation (37 per cent) and Victoria was in the middle of all the states. In most states, cycling participation was more common in regional areas than metropolitan areas.

When considering participation in Australian cities, Pucher, Garrard, et al. (2010) examined Australia’s largest two cities, Melbourne and Sydney, with respect to cycling participation. The study found that cycling participation in Melbourne was roughly double that seen in Sydney. Moreover, the study suggested cycling participation in Melbourne had been growing at a rapid rate, three times the rate of Sydney in recent times. It was suggested that a range of factors related to topography, climate and road infrastructure, in addition to the presence of a range of cycling-oriented initiatives such as events, promotional campaigns and advocacy groups and programs, produced more favourable conditions in Melbourne than in Sydney. Roads and traffic infrastructure in Sydney were not considered to be supportive of cyclists, with mortised traffic dominating roads and limited cycling networks available for cyclists (Pucher, Garrard, et al., 2010).

As was noted previously, in countries where cycling is less common, men tend to cycle more than women, while in countries such as the Netherlands and Belgium, where culture and infrastructure support cycling, these disparities are not seen (Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012; Garrard et al., 2008; Pucher & Buehler, 2008; Pucher, Garrard, et al., 2010). Cycling participation in Melbourne was assessed by Garrard et al. (2008) to identify specific usage patterns of a range of cycling facilities. The study found that cyclists were predominantly male, outnumbering women almost four to one. This imbalance is consistent with existing research (Bell, Garrard, & Swinburn, 2006) and with Exercise Recreation and Sport Survey data (Standing Committee on Recreation and Sport, 2010).
According to Pucher and Dijkstra (2003) and Pucher and Buehler (2008), in countries that have already developed a culture that accepts and encourages active recreation and transport through policies, infrastructure and social marketing efforts, cycling is able to reach most population groups, including women, children, the elderly, disadvantaged populations and culturally diverse groups.

The low rates of cycling participation recorded with respect to Australian women presents as an issue which could benefit from research attention. Increasing women’s participation in cycling seems possible if appropriate supports and incentives are made available, as has been achieved in parts of Europe. Therefore, targeting women’s cycling participation in Australia will most likely require a detailed understanding of the factors that influence their participation. Having established that participation trends internationally vary considerably, it is relevant to consider how the settings in which people cycle vary between countries. Further to this, it is useful to review literature related to factors that support or constrain cycling participation across the globe.

### 2.3.2 Cycling Settings: Cycling Participation and Environmental Influences

Pucher and Buehler (2008) provided a detailed discussion regarding the infrastructure, policies and culture that exist in European cities with high rates of cycling participation. The authors noted that cycling was not always a dominant activity in the Netherlands, Germany and Denmark. In the 1950s cycling rates in the UK were, in fact, higher than those seen in these countries (Pucher & Buehler, 2008). Transport policies, land-use policies, taxation policies and parking policies amongst others are explained to be at least as important as, if not more important than, natural environmental characteristics such as topology and weather conditions in efforts to encourage cycling participation (Pucher & Buehler, 2008).

In terms of planning and policy, the UK and USA have embraced car culture and supported its existence. “The UK and USA have given the green light to the private car, almost regardless of its economic, social and environmental costs” (Pucher &
Buehler, 2008, p. 496). Conversely, in Northern Europe, cars are given the ‘red light’ or ‘yellow warning light’ (Pucher & Buehler, 2008, p. 496) and are discouraged through planning, infrastructure and regulation. This highlights the relevance of factors such as the built environment, social environment, policy-related issues and a collective understanding of these influences on participation in cycling.

Pucher, Dill, et al. (2010) suggested that cyclists show a distinct preference for bicycle lanes over the integration of motorists and cyclists, particularly among novice cyclists. Dill and Carr (2003) found a strong positive correlation between cycling infrastructure such as bike lanes and commuter cycling in the USA. Women particularly preferred higher degrees of separation from roads, where less interaction with motor vehicle traffic is experienced (Dill & Gliebe, 2008; Emond et al., 2009; Garrard et al., 2008). This could lead to the assumption that women prefer bicycle paths to roads, although Emond et al. (2009) discovered that women were actually still concerned for safety while using off-road paths.

When considering cycling for transport purposes, it is relevant to also consider the impact of car use and dependence across the world. In countries such as the Netherlands and Denmark, car ownership is considerably lower than it is in America and Australia (Pucher & Buehler, 2008). An international study of transportation found that cities in Australia and the USA were among the most highly dependent on automobiles (Newman & Kenworthy, 1999).

Passenger car consumption in Australia has steadily risen over the past four decades to show an increase from 398 vehicles per thousand people in 1971 to 674 per thousand in 2004, and 720 per thousand in 2009 (Australian Bureau of Statistics, 2009a). This increase in car consumption not only discourages commuter cycling, it is also likely to impact the preference for infrastructure investment where money is spent upgrading freeways and building car parks rather than integrating public transport with cycling infrastructure and improving opportunities for recreational cycling. Given that several forms of competitive and recreational cycling are also
performed on roads, where interaction with cars is inevitable, a flow-on effect to recreation and sporting forms of cycling seems a likely outcome.

When examining Australian cities further, Pucher, Garrard, et al. (2010) provided a comparison between the cycling environments of two major Australian cities. It was suggested that Melbourne experiences significantly higher rates of cycling participation than Sydney, with both cities having the highest rates of participation in the inner city areas. Cycling in the inner-city suburbs, particularly for transport, was suggested to be more common, because the available infrastructure is more cyclist-friendly, traffic congestion is higher, trip distances are often shorter, and higher density living and expensive parking are the norm.

When contrasting the cycling environments of Melbourne and Sydney, it was noted that on the whole, Sydney was hillier, with harbours and bays further segregating areas of the city. Such natural environmental conditions required a higher level of fitness and forced cyclists and motorists to share key roadways. This was contrasted with Melbourne where the “topography is more continuous and thus offers more direct and faster travel between origins and destinations” (Pucher, Garrard, et al., 2010, p. 5). Furthermore, weather conditions in Melbourne were said to be more conducive to cycling, and more similar to those seen in countries such as the Netherlands, Germany and Denmark. Streets were considered to be wider, more effectively connected and less congested, further encouraging cycling in Melbourne. Policies were considered more supportive of cyclists in Melbourne, with initiatives such as the TravelSmart programs and cycling events serving to support infrastructure and further encourage cycling (Pucher, Garrard, et al., 2010).

In the Netherlands, Denmark and Germany, where cycling is common, cycling is portrayed as an activity for all. As such, cycling-specific clothing or a high degree of fitness is not perceived to be required, in contrast to cities in countries such as Australia (Pucher & Buehler, 2008). Given that women have reported issues such as fitness, an unwillingness to conform to local cultural norms regarding cycling clothing (Garrard et al., 2006), and carrying a change of clothes (AMR Interactive,
as barriers to cycling, it seems logical that in countries where culture and expectations make cycling a more appealing, realistic prospect, a greater proportion of females cycle.

The preceding discussion sought to examine Australian cycling settings and environments and found them to be less supportive than in countries such as the Netherlands, Germany and Denmark. On the other hand, Australian conditions are more in line with those seen in most parts of the UK, the USA and Canada, where lower rates of cycling participation are reported (Pucher & Buehler, 2008). Within two of Australia’s major cities (Melbourne and Sydney), cycling infrastructure, policies and natural environmental conditions (amongst other things) were shown to differ significantly, with rates of participation and growth in cycling suggested to have followed (Pucher, Garrard, et al., 2010). While Melbourne settings were generally said to be more cyclist-friendly, if placed on a continuum, they were far behind cities, in other countries, with high rates of participation.

Dill (2009), and Dill and Carr (2003) found that the physical characteristics of cycling environments play an important role in determining cycling participation. This has particularly been the case in the context of women’s participation (Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012; Garrard et al., 2008). While such characteristics were important, authors discussed a range of other environmental elements that influenced women’s participation in cycling. Overall, it seems that a broad range of characteristics related to the settings in which people live, work and wish to cycle influence their ability and willingness to do so (Bauman et al., 2008). Despite such knowledge, it has been suggested that opportunities exist to extend our understanding of cycling participation influences, particularly with respect to women’s participation (Emond et al., 2009; Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012; Krizek et al., 2005). As a consequence, this discussion has highlighted the impact of settings and environments, including physical characteristics, policies and regulations and social elements such as culture. The following section will further expand on participation influences, with a focus on women’s participation.
2.4 CYCLING PARTICIPATION INFLUENCES: FOCUSING ON WOMEN

Influences on women’s cycling participation have been explored previously (Cycling Promotion Fund & Heart Foundation, 2013; Daley et al., 2007; Emond et al., 2009; Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012; Garrard et al., 2008; Krizek et al., 2005). However, opportunities exist to further develop this body of literature. A range of factors may encourage or discourage individual participation, with variation possibly occurring between influences on different forms of cycling (Daley et al., 2007; Garrard et al., 2012).

In an Australian context, Garrard et al. (2006) used a mixed-methods approach to examine motivators, supports for and constraints on women’s cycling participation. While minor variations were observed between qualitative and quantitative components of the study, motivators to commence cycling reported by female Bicycle Victoria members were generally related to health, fitness, reducing stress, setting personal goals around events, getting out in the fresh air, opportunities to learn new skills and specific social reasons such as being active with their family or being considered a positive role model. Motivators for women to continue to cycle revolved around enjoyment, independence, socialising, balancing exercise with a busy schedule, learning new skills and developing self-confidence.

Garrard et al. (2006) also examined barriers to cycling reported by participants that were generally associated with a range of individual and socio-environmental factors (Garrard et al., 2006). Personal barriers were generally related to lack of confidence and cycling skills (especially cycling in traffic and in groups), lack of fitness and inability to keep up with others, lack of time and concern regarding operating a bicycle in complex environments (around pedestrians, cyclists, or cars). Socio-environmental barriers related to structural or cultural factors, and included traffic conditions, aggressive drivers, social norms and attitudes towards cycling, weather, and practicalities such as attire and end-of-trip facilities. Positive supportive elements discussed related to relevant programs, groups, events and cycling conditions (such as well-equipped bicycles and safe cycling routes). The vast
array of influences identified highlights the complexities associated with encouraging women’s cycling participation in Australia.

While the aforementioned study provides some insights into women’s perceptions about cycling and influences on participation, the sample was taken from Bicycle Victoria members and women enrolled in cycling-related programs only, who were therefore more likely than the average person to be interested in cycling, have cycled in the past, or have been involved in some form of cycling at the time. The attitudes and behaviours of non-participants (i.e., non-members) were not considered here. A contrast between female Bicycle Victoria members and a random sample of females who do not cycle may have supplemented these findings to identify any differences in barriers reported by ‘interested’ women (i.e., Bicycle Victoria members), and non-interested women.

A recent survey was conducted by the Cycling Promotion Fund and Heart Foundation (2013), exploring women’s participation and considering perceptions of both cyclists and non-cyclists. A total of 1007 Australian women aged 18 years and over were surveyed, with the largest proportion of participants living in Sydney (20%) or Melbourne (19%). The survey examined factors such as childhood cycling participation, bicycle ownership, and purpose of cycling (fun, exercise, transport or competition), amongst other things. Close to one-third of respondents reported participating in some form of cycling in the past six months. Of those participants, more women suggested they participate in cycling for exercise and/or fun than for transport. Less than one per cent of those who had cycled in the past six months had engaged in competitive cycling. This finding highlights the complexities noted earlier in the thesis with respect to the potential for participation influences to vary depending on cycling form. Why do women cycle for exercise and fun more than for transport or sport?

Women were also asked to explain what they felt was most important to them about cycling, thus exploring motivation and desired outcomes in many respects (Cycling Promotion Fund & Heart Foundation, 2013). Of the twelve options
provided, women reported health and fitness, getting outside, and fun and enjoyment as the most important factors. Within this context, only 26 per cent of participants who cycled, engaged in transport-related cycling. Similar to the approach used by Garrard et al. (2006), in addition to motivators, the aforementioned survey (Cycling Promotion Fund & Heart Foundation, 2013) also explored barriers and supports for/enablers of women’s cycling participation. Lack of confidence, time and fitness rated as the biggest barriers for women, while speed and volume of traffic, aggression from road users, being involved in an accident and weather/darkness were also reported as key deterrents.

It can be seen that similar to findings presented by Garrard et al. (2006), safety was a major concern for women in the Australian survey with personal safety, speed and volume of cars, distracted driving and moving trucks and buses all presenting as key issues for women (Cycling Promotion Fund & Heart Foundation, 2013). Women suggested that improving bicycle facilities and increasing the separation from cars was particularly important to them with 88 per cent agreeing that governments should improve cycle facilities such as bicycle lanes and paths. This is consistent with existing research which has suggested that women possess a heightened concern for safety on roads and bicycle paths (Garrard, 2003; Krizek et al., 2005).

Women are suggested to be more apprehensive than men with respect to riding on busier roads that cater poorly to the needs of cyclists (Emond et al., 2009). Women’s concern for safety and apprehension about using busy roads is demonstrated through their willingness to travel additional minutes out of their way, when compared with men, to access preferred cycling facilities such as paths and bike lanes (Krizek et al., 2005). Inexperienced female cyclists have reported feeling as though they have nowhere safe to ride (Daley et al., 2007). Overall, “women are both more concerned about safety and more affected by safety concerns” than men, particularly in countries with low overall rates of participation (Garrard et al., 2012, p. 222).
While women have been shown to be particularly aware and concerned regarding risks associated with cycling, there does not appear to be evidence to suggest that women’s injury risks are any greater than those experienced by males (Garrard et al., 2012). A study conducted in Portland (a cycling-oriented city in the USA) identified no difference in rates of trauma between men and women (Hoffman, Lambert, Peck, & Mayberry, 2010). In Melbourne, the Monash, Alfred Cyclist Crash Study (Biegler et al., 2012) examined a range of factors related to cyclist accidents resulting in hospitalisation. All participants who had been in a bicycle accident which resulted in their attendance at one of two emergency departments over a one year period (October 2010-2011) were contacted. The sample (N=158) consisted of those willing to participate from the total of 481 reported cases. Males accounted for 74 per cent; females, 27 per cent. The gender representation was similar in the participant and non-participant groups. While this may not provide conclusive evidence as to the likelihood of injury, cyclist accident cases at these two emergency departments generally reflect population cycling statistics (Standing Committee on Recreation and Sport, 2010). As such, it seems unlikely that females are at higher risk of being involved in an accident than males.

A study in the USA examined cyclist safety-related issues (National Highway Traffic and Safety Administration, 2008) in a national sample, (N=9616, nationally representative). In this study, three per cent of female cyclists and four per cent of male cyclists had been injured riding a bicycle in the past two years. Moreover, research conducted in the United Kingdom, which adjusted for distance cycled, found there was a greater likelihood that men would be injured cycling, with more severe injuries also being experienced by men (Knowles et al., 2009). This further emphasises that women’s risk concerns may be more strongly influenced by perception than actual risk. Whatever the cause of such risk aversion, Garrard et al. (2012) suggested that “perceptions of risk may be as important as actual risks, particularly for women, and that ‘traffic risks’ extend beyond risk of fatality or serious injury, to include risk of ‘near misses’ or ‘harassment’” (p. 223). With this in mind, it seems that while safe infrastructure is critical, a range of other supporting
actions may be required such as skill and knowledge development interventions, culture change and the like, with a view to reducing perceived cycling risks reported by women.

In response to an identified lack of qualitative research focusing on cycling perceptions, Daley et al. (2007) conducted focus groups to explore the perceptions of 70 Australians (of which 46 were female). AMR Interactive (2009), and Bauman et al. (2008) also considered cycling participation influences, which incorporated issues relevant to women. Comparisons between cycling participation attitudes and behaviours of men and women were investigated in the USA, by Emond et al. (2009). Such studies generally framed influences using socio-ecological dimensions (discussed later in the chapter), with personal, socio-cultural, built environmental and policy-related factors having been considered.

Personal/individual factors and the built environment were found to be most influential with respect to occasional and non-riders (categories in which most female participants were classified) (Daley et al., 2007). Such individual influences included enjoyment, perceptions of safety, individual skill level, health and fitness status and self-efficacy. Individual factors such as biking comfort and concern for the environment were found to be important influences on women’s cycling participation in the USA (Emond et al., 2009). In the aforementioned study, women were more likely to report a lower level of biking comfort on two- or four-lane roads, irrespective of the presence of bicycle lanes, and were just as comfortable riding on quiet back streets, when compared with men (Emond et al., 2009).

Concern for personal safety, fear and lack of confidence handling bikes were found to influence those who did not cycle frequently (Daley et al., 2007). AMR Interactive (2009) suggested that commonly cited reasons for non-participation included safety and ability to ride. “Perceived danger was a significant barrier for occasional and non-riders (mostly females), who had lower levels of skill and confidence than regular riders” (Daley et al., 2007, p. 49). Women who did not cycle frequently suggested that cycling in supported environments with others was more appealing
than riding alone and being forced to navigate routes and environments by themselves (Daley et al., 2007). Occasional riders were unsure regarding route selection and believed that while they could ride for recreation every so often, they would need to gain a better understanding of basic bicycle maintenance and a range of other skills before they were able to commute by bicycle (Daley et al., 2007). This finding reinforces the value in further examining how participation influences vary depending on the type of cycling under consideration. Furthermore, these findings seem to indicate that women experience a high degree of apprehension and anxiety on many levels, as they contemplate cycling.

Bauman et al. (2008) summarised participation influences and suggested that individual issues (such as lack of riding skills and confidence), social issues (related to cycling norms) and physical environmental considerations such as cycling infrastructure, along with cyclist safety and key policies, were all key issues to consider in encouraging participation in Australia. The authors recommended a range of integrated initiatives be introduced to address barriers and encourage participation. It appears that encouraging women’s participation in Australia will require significant change. Successful action taken in the Netherlands, Denmark and Germany to encourage cycling participation (Pucher & Buehler, 2008) indicates that women can be encouraged to cycle, if conditions are appropriate. Given that barriers such as lack of skills, confidence and heightened awareness of risks associated with cycling were repeatedly identified as key barriers related to women’s participation, interventions that address such barriers may need to be considered further in efforts to encourage Australian women to cycle. The following section considers interventions that have been implemented to date to encourage cycling participation around the globe.

### 2.5 INTERVENTIONS TO PROMOTE CYCLING

Given the potential benefits associated with increased rates of population cycling (Bauman et al., 2008), logically, different forms of action have been taken to encourage participation around the world. Cycling is encouraged in Australia
through national and state-based cycling strategies (Austroads, 2010; New South Wales Government, 2010; Victorian Government, 2012) which aim to guide a suite of coordinated actions toward reaching target participation goals. However, in informing such strategies and targeting specific population groups, research related to the effectiveness and appropriateness of different interventions is relevant to consider. The present section examines existing literature related to cycling interventions, drawing on findings from three systematic literature reviews and other relevant research. This is undertaken in an effort to better understand the role of interventions in encouraging cycling participation and to identify any research gaps that may present as opportunities in the context of the present study and women’s cycling participation.

Yang et al. (2010) suggested that opportunities existed to better understand the effects of interventions to promote cycling as a specific form of physical activity. Pucher, Dill, et al. (2010) identified a similar gap in the research and sought to review literature relevant to infrastructure, programs and policies which sought to increase cycling participation. In addition to these two internationally focused systematic literature reviews, Rissel and Garrard (2006) provided an Australian perspective regarding interventions to promote cycling participation. The authors noted that “there is little Australian research to provide evidence to policy makers on effective interventions to promote cycling” (Rissel & Garrard, 2006). Such reviews offer an indication of the value of a range of different interventions. In all reviews, a lack of published research related to cycling interventions was suggested as a research gap (Pucher, Dill, et al., 2010; Rissel & Garrard, 2006; Yang et al., 2010).

Interventions identified in the three reviews included programs focusing on individual behaviour change actions, social marketing campaigns, infrastructure changes, integration of bicycles with public transport, legal interventions and multifaceted city or town level programs (Pucher, Dill, et al., 2010; Rissel & Garrard, 2006; Yang et al., 2010). Yang et al. (2010) and Rissel and Garrard (2006) found that most interventions were associated with an increase in cycling, demonstrating that
a variety of actions could potentially produce positive cycling outcomes. Pucher, Dill, et al. (2010) suggested that positive changes to cycling behaviour were mostly seen in the case of interventions that integrated a series of actions within the intervention program and location, to encourage community wide cycling participation. In the case of such interventions, it could be said that the product of combined intervention efforts was greater than the sum of each individual intervention component alone.

Despite literature which indicates that lack of skills and confidence, and safety fears hold women back from cycling (Cycling Promotion Fund & Heart Foundation, 2013; Daley et al., 2007; Garrard, 2003; Garrard et al., 2006; Garrard et al., 2008), very little research was identified which examined outcomes of cycling education programs (Pucher, Dill, et al., 2010; Rissel & Garrard, 2006; Yang et al., 2010). Furthermore, Bauman et al. (2008) recommended that cycling education courses be included as an element of Australian action to promote cycling participation, with Garrard et al. (2006) suggesting such interventions would be of particular relevance for women. While researchers noted that cycling training was a small component of some larger scale interventions discussed (Pucher, Dill, et al., 2010; Rissel & Garrard, 2006; Yang et al., 2010) the only intervention identified which specifically focused on cycling education as an intervention was a study by Telfer, Rissel, Bindon, and Bosch (2006). This perhaps indicates either a lack of adult cycling education programs upon which to focus research attention, or a lack of research emphasis on such programs to date.

Telfer et al. (2006) used a pilot proficiency training program to encourage cycling in central Sydney. In 2003, 20 free-of-charge cycling proficiency training programs were conducted with 113 participants at baseline, of which 81 completed at least one course. Interestingly, 75 per cent of participants were female, and given that recruitment was achieved through promotional flyers, posters and other forms of media, perhaps this might indicate that a demand for such training exists amongst Australian females. It could be suggested that such demand might be related to the heightened sense of risk women feel, as discussed earlier in the present chapter.
One-hundred-and-five participants were interviewed pre- and post-participation, with cycling behaviour assessed after a two-month period using questionnaires and self-report measures.

The program was well received by participants, with the majority of people indicating that the training assisted them in building confidence and skills and that the theoretical, practical and written information provided was generally perceived to be good or excellent (Telfer et al., 2006). In terms of impact, limited changes were recorded, however, for those reporting no participation in cycling at baseline (55 people), 40 per cent (22 people) reported cycling at least once that week, in follow-up interviews two months post participation (Telfer et al., 2006). While the aforementioned study considered participation changes in assessing program impact, limited attention was given to motivations for course enrolment, experiences in courses, or details related to changes in perceived barriers and cycling perceptions related to participation. As such, opportunities appear to exist to examine outcomes related to cycling education participation, in more detail.

Further building on understanding from an Australian perspective, Rissel, New, et al. (2010) conducted research focusing on the Cycling Connecting Communities project in Sydney. The aforementioned intervention involved providing members of a specific community with detailed local maps indicating best cycle routes in the local area, some cycling skills courses, as well as information sessions and event rides. Actions essentially involved providing information and support within a community to encourage cycling participation. It was reported that bicycle path use in the intervention area was significantly higher than in the control area (Rissel, New, et al., 2010). The intervention involved a modest budget and achieved increases in bicycle-path use. However, it was noted that one possible reason for the increase was that existing riders increased their use of the cycle path, rather than encouraging new riders (Rissel, New, et al., 2010). While positive results were recorded, the modest budget resulted in limited impact with respect to population activity levels.
Bowles, Rissel, and Bauman (2006) examined a mass community cycling event in Sydney to establish whether participation in a cycling event would impact cycling behaviour one month after participation. While the majority of participants were experienced riders (83%), novice riders, those reporting low levels of physical activity at baseline, and women were targeted specifically for follow-up interviews. Similar to population trends in cycling participation (Austroads, 2011b; Standing Committee on Recreation and Sport, 2010), more men participated in the cycling event (72 per cent) than women (28 per cent) (Bowles et al., 2006). Novice and inactive event participants significantly improved their self-perceived cycling skills and frequency of participation one month after participation in the event (Bowles et al., 2006). First-time participants in the event reported riding their bicycles, on average, seven times in the month preceding the event and an average of nine times in the following month. These findings, while modest when considering the number of participants who were novice riders or of low activity level at baseline, would indicate the potential impact of event riding when included as a component of a comprehensive intervention program. Longer follow-up periods would be required to confirm this contention in terms of sustained behaviour change.

Merom, Bauman, Vita, and Close (2003) evaluated outcomes from a campaign to raise community awareness of a newly constructed rail trail link in Western Sydney. Interviews with 18-55 year olds living in the local area were conducted pre- and post- implementation of the promotional campaign with bicycle counts also having been conducted along the bicycle track. The campaign encouraged small increases in awareness of the trail, but produced very limited cycling behaviour change. This seems to highlight limitations associated with relying on promotions alone to encourage cycling, as noted in the systematic literature reviews considered earlier in the chapter. The factors underlying individual motivations to use or not use the trail would need to have been explored to gain a more detailed understanding as to why such minimal changes in behaviour occurred.

Through this review of intervention studies in Australia and overseas, a number of gaps in the literature were identified. It appears that limited evidence exists with
respect to understanding the impact or role of cycling interventions (Pucher, Dill, et al., 2010; Rissel & Garrard, 2006; Yang et al., 2010). What evidence does exist suggests that action often results in positive outcomes, especially when incorporated into a multifaceted program. It was highlighted in the literature that research specifically focusing on women is limited, with only a handful of studies considering women’s needs or gender differences, despite the disparity in participation identified in many developed nations.

Studies examining specific outcomes related to cycling education-based interventions were also lacking, despite the fact that individual influences (such as confidence and skill level) were suggested to strongly influence women’s cycling participation (Daley et al., 2007; Emond et al., 2009; Garrard et al., 2006; Garrard et al., 2012). Cycling education programs appear to address many cycling barriers reported by women, yet little is known about the role cycling education might play in encouraging Australian women to cycle. Opportunities exist to expand this body of literature. The following section further reflects on cycling education as a relevant context for the present study, seeking to examine Australian women’s cycling participation.

2.6 CYCLING EDUCATION: AN INTERVENTION REQUIRING RESEARCH ATTENTION

It was stated in the current Australian Cycling Strategy (Austroads, 2010) that over the past five years, while significant investment had been made in cycling networks and infrastructure, limited participation impacts had been observed in that time. “An holistic approach is needed, including cultural and behavioural-change strategies to encourage people to use the network and realise the benefit of the investment” (Austroads, 2010, p. 16). Other research has also suggested that infrastructure alone is not the answer to low rates of cycling participation (Parkin, Wardman, & Page, 2007). Thus, we see multifaceted cycling strategies being developed in Australia and around the world. As such, the Australia’s investment in cycling infrastructure to date, and planned for the future, is likely to play an
important role, but cannot be expected to lead to significant participation increases in isolation.

To enhance the potential impact of infrastructure investment, further emphasis needs to be placed on encouraging people to use the infrastructure provided, focusing on a range of individual and socio-cultural issues associated with cycling participation (Austroads, 2010). When considering relevant initiatives, literature specifically related to women’s participation indicated that a lack of skills, confidence and concern for safety were barriers of particular relevance with regard to cycling (Cycling Promotion Fund & Heart Foundation, 2013; Daley et al., 2007; Garrard, 2003; Garrard et al., 2006; Garrard et al., 2008). Furthermore, many women described the need to master a number of skills simultaneously, including operating a bicycle while negotiating varying road surfaces, traffic and environmental hazards, as a daunting task (Garrard et al., 2006). Women also reported having issues translating skills well known to drivers such as merging with traffic, negotiating roundabouts and performing right-hand turns, to skills required by cyclists. Emond et al. (2009) reinforced that within a socio-ecological framework, individual factors were the most significant determinants of women’s cycling behaviour.

The summary of barriers to cycling presented by Garrard et al. (2006) indicated a need for skill-focused training for women. Cycling education was considered to be of particular importance in encouraging novice females to develop relevant skills and knowledge, including learning to cycle in traffic, choosing the right bicycle, mechanical or set-up-related issues, becoming aware of the presence of local infrastructure and paths in a safe environment (Garrard et al., 2006). In three examples of Australian cycling strategies, cycling education has been identified as a required element in efforts to encourage participation and to support cycling safety-oriented goals (Austroads, 2010; New South Wales Government, 2010; Victorian Government, 2012). In the recent Australian Women and Cycling Survey (Cycling Promotion Fund & Heart Foundation, 2013), 70 per cent of women
suggested governments should provide education to encourage more women to cycle.

Bauman et al. (2008) recommended that cycling education programs be used to increase the skills and confidence of riders and ultimately encourage more Australians to cycle more often. The authors acknowledged that cycling education alone could not be expected to bring about significant changes in cycling participation, as is evidenced by the multifaceted strategies proposed at state and federal levels of government. Yet, this type of intervention (cycling education) appears to address a number of key barriers reported by women and as such, should play a role within the overall context of women’s cycling promotion in Australia. Based on their review of the literature, Rissel and Garrard (2006) noted that little is known regarding outcomes associated with adult cycling-skills programs. Cycling skill development programs also did not feature highly in the systematic reviews of cycling intervention literature undertaken by Pucher, Dill, et al. (2010) and Yang et al. (2010). Telfer et al. (2006) found that self-reported confidence and skill levels were significantly increased when assessed two months post-participation in cycling education programs. Increases in cycling participation were particularly recorded for those who were non-cyclists at baseline (Telfer et al., 2006).

In the qualitative portion of a study which focused on women’s cycling participation, Garrard et al. (2006) conducted focus groups with women who participated in one of a number of cycling programs. Some such programs included education and training components. This study found that women valued time spent learning cycling-related skills and benefitted from opportunities to improve their skills and confidence with other women. These two studies provide preliminary evidence that such interventions could have positive outcomes related to women’s cycling participation, although generally knowledge is limited and further research is required. An opportunity exists to focus research attention on such programs in order to fully understand the power of cycling skills-based interventions in altering the perceptions and behaviour of women, within the wider
social and environmental context. For these reasons, cycling education has been selected as the context for the present study, as will be discussed in Chapter Three. The following section provides additional context with respect to the Australian cycling landscape, also considering definitional issues associated with examining cycling participation.

2.7 AUSTRALIAN CYCLING LANDSCAPE: CYCLING STAKEHOLDERS AND STRATEGY

Cycling delivery in Australia involves a variety of stakeholders, across different domains. In examining the supportiveness of Sydney and Melbourne with respect to cycling, Pucher, Garrard, et al. (2010) referred to a range of sources of information and relevant bodies. This highlighted the complex landscape of cycling delivery responsibilities and interests in Australia existing across multiple levels of government (federal, state, local) and departments or agendas within governments (transport, roads, sport, health, environment). Added to this, a range of non-profit stakeholder groups further contributes to cycling delivery, advocacy and support in Australia. Table 2.2 is included to provide an overview of relevant stakeholders in the context of cycling governance and delivery in Australia.

From an Australian government perspective, responsibility for the development of a National Cycling Strategy (Austroads, 2010), lies with Austroads. This appears to indicate a strong emphasis on engaging road and transport authorities/departments in planning and delivery efforts related to cycling. With an aim of doubling the number of people cycling by 2016, the current national cycling strategy seeks to encourage participation as a means of developing a healthier, more active population that lives more sustainably in less congested cities (Austroads, 2010). The key priorities in delivering on this objective include cycling promotion, infrastructure and facilities, integrated planning, safety, and monitoring and evaluating. When examining action points related to such priorities, it can be seen that the support of government at state and territory level is crucial in implementing and supporting the strategy.
### Table 2.2: Australian Cycling Delivery - Relevant Stakeholders

<table>
<thead>
<tr>
<th>Organisation/ Category</th>
<th>Context and Aims</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Austroads</strong>&lt;br&gt;(Association of Australia and New Zealand road transport and traffic authorities)</td>
<td>• 7 Australian State and territory road transport and traffic authorities, Department of Infrastructure and Transport, the Australian Local Government Association and the New Zealand Transport Agency.</td>
<td>• Promote improved Australian and New Zealand transport outcomes by providing expert technical input to national policy development on road and road transport issues. • Responsible for development of the Australian National Cycling Strategy.</td>
</tr>
<tr>
<td><strong>Australian Bicycle Council</strong></td>
<td>• Secretariat is provided by Austroads through funding from the Commonwealth Department of Infrastructure and Transport. • Exists to coordinate the implementation of the National Cycling Strategy.</td>
<td>• Oversee and coordinate implementation of the Australian National Cycling Strategy. • Provide a forum for the sharing of information between stakeholders involved in the implementation of the strategy. • Maintain a repository of information and resources to promote increased cycling in Australia.</td>
</tr>
<tr>
<td><strong>State and territory governments</strong></td>
<td>• 7 state and territory governments, consider issues at state level.</td>
<td>• Responsible for cycling strategy development and delivery at state level.</td>
</tr>
<tr>
<td><strong>Recreational cycling bodies</strong>&lt;br&gt;(e.g., Bicycle Network Victoria, Bicycle New South Wales)</td>
<td>• Non-profit • Members are individuals (cyclists in the community). • Aim: Increase cycling participation.</td>
<td>• Advocate safe cycling through environmental improvements, programs, events and participation opportunities. • Generally concerned with recreational and commuter cycling.</td>
</tr>
<tr>
<td><strong>National and state cycling organisations</strong>&lt;br&gt;(Cycling Australia and state-based organisations)</td>
<td>• Traditionally responsible for competitive cycling development and delivery. • 1 national, 7 state and territory governing bodies. • Funded by government.</td>
<td>• Event and competitive cycling delivery. • Cycling developmental pathway. • Protecting and advocating the rights of cyclists. • Increasing emphasis on ‘cycling for all’.</td>
</tr>
<tr>
<td><strong>Cycling Promotion Fund</strong>&lt;br&gt;(National organisation)</td>
<td>• Non-profit. • Members are businesses involved in bicycle.</td>
<td>• Lift the profile of cycling as a great activity for everyone. • Be a leading advocate for and source of information and resources for cycling.</td>
</tr>
<tr>
<td>Aim: Increase the level of cycling in Australia.</td>
<td>Advice on cycling.</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>• Gain increased government investment for cycling.</td>
<td>• Make it easier for people to choose to cycle.</td>
<td></td>
</tr>
<tr>
<td>• Promote and encourage initiatives which achieve measurable increases in cycling.</td>
<td>• Recognise, reward and encourage innovation and achievements and promote best practice.</td>
<td></td>
</tr>
</tbody>
</table>

**Amy Gillett Foundation (AGF)**
- Charity.
- Aim to reduce the incidence of death and injury of bike riders and make cycling in Australia safe.
- Advocate and promote:
  - Widespread traffic calming.
  - Better cycling environments.
  - Road rule change to support cyclists.
  - Improved education (through AustCycle).

**AustCycle**
- National accreditation program for cycling education.
- Joint initiative between AGF, Cycling Australia and Bicycle Federation of Australia (no longer operating).
- Provide training and accreditation for cycling education instructors nationally.
- Provide resources and support including insurance to trainers.
- Draw on government funding through the Healthy Communities Initiative, to provider trainers to deliver programs nationally.

**Bicycle user groups (BUGs)**
- Different forms of BUGs exist; generally they are locally based groups of cyclists who work with local councils and campaign for better facilities while also organising various rides.

**Cycling clubs**
- Various forms exist from touring clubs (e.g., Melbourne Bicycle Touring Club) to racing-oriented clubs (e.g., Carnegie Caulfield Cycling Club, Club associated with Cycling Victoria).

State and territory governments also offer state-based cycling strategies. For example, the Victorian Government sought to position Victoria as Australia’s “most bike-friendly state” through their 2013-23 cycling strategy (Victorian Government, 2012, p. v). The six key directions proposed by the Victorian cycling strategy include building evidence, enhancing governance and streamlining processes, reducing safety risks, encouraging cycling, growing the cycling economy, and planning networks and prioritising investment. A second example is the New South Wales Bike Plan (New South Wales Government, 2010), which seeks to make New South Wales “one of the world’s best places to ride a bike” (p. 3). Strategies to encourage bike riding in the state revolve around creating connecting cycling networks, making bike riding safe for all, planning cycling-friendly neighbourhoods, growing jobs in cycling and getting organisations working together to support bike-riding.

The complexities associated with cycling delivery are acknowledged by government at all levels. In the National Cycling Strategy (Austroads, 2010), it was suggested that guidance and best practice were priorities in developing “nationally consistent technical guidance for stakeholders to use and share best practice across jurisdictions” (p. 15). In the Victorian cycling strategy (Victorian Government, 2012), the Government proposed it would “establish an Interdepartmental Cycling Committee, chaired by the Department of Transport, to enhance coordination and ensure there are clear lines of accountability when there are multiple interests in cycling” (p. v). In the New South Wales Bike Plan, it was suggested that attention would be given to encouraging government, community and business stakeholders to work together in supporting bike riding. These three examples of cycling strategies from an Australian perspective highlight that collaboration is a key issue faced in cycling delivery.

Adding to the complexities associated with cycling delivery, cycling as a sport is governed by national and state-based sporting bodies (Cycling Australia and respective state organisations), while recreational and transport-related cycling is supported by bodies such as Bicycle Network Victoria and Bicycle New South Wales
Sport-oriented bodies are government funded (Cycling Australia, 2013a; Cycling Victoria, 2013), while bicycle NSW and Bicycle Network Victoria are non-profit organisations established by members of the public which encourage predominantly transport and recreational cycling participation (Bicycle Network Victoria, 2013a; Bicycle NSW, 2013). However, in recent times some emphasis has been placed on competitive cycling, with Bicycle Network Victoria announcing the establishment of a member-based cycling ‘team’ which they suggested would participate in mass participation events, criteriums and road races (Bicycle Network Victoria, 2013c).

On the other hand, sport cycling bodies appear to be increasingly striving to focus on recreational and community participation with their ‘cycling for all’ approach (Cycling Australia, 2011b). Cycling Australia’s increasing emphasis on supporting cycling more generally is further demonstrated by the appointment of a national participation coordinator and other related participation initiatives (Cycling Australia, 2013c). For example, a ‘silver licence’ or recreational membership and associated events are offered and/or supported by the organisation. This license was suggested to have been introduced to encourage recreational participation with a range of recreational and charity events along with coffee-crew rides and skill development initiatives offered to such members (Cycling Australia, 2013c).

While the focus of sport bodies such as Cycling Australia and its state-based counterparts will likely remain predominantly on competitive cycling and elite development, it seems this emphasis is now broadening to a degree. This is perhaps in response to a change in thinking which stems largely from recommendations made in the report ‘The Future of Sport in Australia’ (Independent Sport Panel, 2009) and subsequent government investment in sport participation.

In November 2010, the Australian Government announced it would be investing A$44 million over four years, to encourage more Australians to participate in sports (Australian Sports Commission, 2010). This funding investment was made with a view to building healthier, more active communities. Within this allocation, Cycling Australia received a significant portion with an additional A$350,000 dedicated to
increasing participation in cycling and BMX. Cycling Australia suggested that this money would assist them to increase their scope of involvement in cycling, to offer “fun, safe inclusive cycling for all” and increasingly provide recreational cycling opportunities (Cycling Australia, 2011b, p. 1). As such, these funds offer potential for increased emphasis on recreational cycling and initiatives designed to enhance the experiences of newcomers. Despite such a shift in emphasis, when examining current Australian Government investment in cycling, performance remains the dominant priority (Australian Sports Commission, 2013).

Several initiatives exist that support women’s participation. Some notable examples including Cycling Victoria’s recent introduction of the Breeze program, dedicated to supporting women’s cycling through bunch-ride initiatives (Cycling Victoria, 2012). The Breeze program was developed using funds received from Sport and Recreation Victoria (a unit within the Victorian Government Department of Planning and Community Development), through their Women in Sport and Recreation (WISAR) program. Drawing on the established Breeze concept born in the UK, and using models proposed by established groups in Victoria, the program seeks to assist women to gain the confidence and skills needed to ride in groups, particularly on roads (Cycling Victoria, 2012). This initiative was also suggested to provide a platform for women to progress to more organised and competitive cycling if they desired.

When comparing this initiative to the Breeze program in the UK, Cycling Victoria appears to have placed greater emphasis on sport development agendas, that is, progression to club-based, competitive cycling. The Breeze program in the UK appears to solely focus on participation, rather than development. “Breeze is the biggest programme ever to get more women into riding bikes for fun. Our aim is to help thousands more women feel confident and comfortable about going on a ride” (British Cycling, 2013a, p. 1). Other initiatives in Australia and overseas related to encouraging women’s participation vary in emphasis, approach and support, and include Gear Up Girl, Girl Bike Love, Bike Belles, Beauty and the Bike, CycloFemme and CogsGirls to name a few.
Through examining Australian cycling stakeholders and their respective roles, the complexities associated with cycling delivery in Australia are further highlighted. It appears that stakeholders across sport, recreation, community and transport, amongst others, are involved to varying degrees, in funding, promoting, supporting and delivering cycling in a variety of ways. As such, a complex landscape is established, further emphasising the potential value in drawing on more than one body of literature in examining women’s cycling participation. The following section will examine definitional issues relevant to the present study, with the remainder dedicated to developing a conceptual framework from relevant bodies of literature.

2.7.1 Cycling Participation: Definitional Considerations

In response to research gaps identified (Daley et al., 2007; Garrard et al., 2012), the present study aims to specifically examine how influences on participation vary with respect to different forms of cycling. As such, it is necessary to review existing approaches to classifying forms of cycling, in order to determine the approach to be taken in the present study. Given the complexities identified with respect to participation and defining key terms (earlier in the chapter), and the various cycling stakeholders discussed in the preceding section, it was not surprising to find that a lack of continuity exists in the literature with respect to classifying forms of cycling.

Cycling research has classified cyclists when examining accident outcomes and injuries, motivations and, in a small number of cases, in examining participation influences. In a study which focused on crash-related hospitalisation injuries in Victoria (Australia), researchers used five categories to describe the purpose of participant cycling behaviour (Biegler et al., 2012). These categories included recreation, commuting, fitness, training and other. Daley et al. (2007), explored barriers and enablers to cycling in inner Sydney and classified participants based on their frequency of participation, as non-riders, occasional riders or regular riders. Cyclist who reported cycling less than twice in the past two years were considered ‘non-riders’; more than four times in the past two years were ‘occasional riders’ and those who rode more than three times per month were classified as ‘regular riders’.
Dill and McNeil (2013) more specifically discussed the typologies of cyclists proposed by Geller (2006), in the context of transport-related cycling promotion in Portland, Oregon. Cyclists were suggested to fall along a continuum with respect to their level of comfort on different bikeways, in addition to other factors. As such, it was suggested that people could be classified based on their level of comfort using specific cycling facilities, their interest in increasing their participation in transport-related cycling and their physical ability to cycle, regardless of current cycling behaviour. The four typologies included: the strong and fearless (ride regardless of roadway conditions); the enthused and the confident (attracted to cycling, comfortable sharing the roadway with automotive traffic, prefer to use cycling facilities); the interested but concerned (curious about cycling, enjoy riding a bike, but afraid in current conditions); the no way no how (not interested in bicycling at all, based on reported barriers or lack of interest).

The majority of cycling research appears to examine either transport or recreational cycling, or the two categories collectively. One example is the women’s cycling participation research conducted by Garrard et al. (2006) which examined participation in ‘transport’ and ‘recreational’ cycling as subsets within the one study. There appears to be scope to expand on the category of recreational cycling further, given the considerations associated with key participation terms discussed earlier in Chapter Two. Sport, physical recreation and organised sport or physical recreation were explained to relate to similar yet different concepts (Australian Bureau of Statistics, 2008).

With respect to cycling, Bowles et al. (2006) and Fullagar and Pavlidis (2012) examined participation in community cycling events; Brown, O’Connor, and Barkatsas (2009) considered motivations for organised cycling participation; while cycling as a tourist activity has also been considered in the literature (Lamont, 2009; Lamont & Buultjens, 2011; Ritchie, Tkaczynski, & Faulks, 2010). This range of activities could collectively be classified as recreational cycling, however, considerable scope exists for influences to vary significantly, based on the type of activity and setting in which it takes place. As such, a system of classification
implemented by LaChausse (2006), who explored motivations of competitive and non-competitive cyclists, is relevant to consider in the context of cycling for sport and recreation purposes. The author suggested that “there are few empirical studies examining the psychological aspects of cycling” (p. 305). In addition to classifying participation based on involvement in two types or categories of cycling (road cycling or mountain biking), three categories related to cycling activity level were established as listed below:

- **Competitive Cyclist**: self-identified as a competitive cyclist and reported having competed in a race sanctioned by a national or state sport governing body in the last three months.

- **Non-Competitive Cyclist**: individuals who cycle on their own or with others in organised bicycle rides (recreational events, etc.), who had not competed and were not participating in organised cycling competitions at the time of the research.

- **Leisure Cyclist**: identified themselves as leisure or casual cyclists and reported that they had not participated in any organised cycling event in the last six months.

When considering these three categories related to level of cycling, similarities can be detected between such categories and definitions of key participation terms, provided by the Australian Bureau of Statistics (2008) (see Table 2.1). ‘Competitive cyclists’, as described by LaChausse (2006) engage in ‘sport’ (Australian Bureau of Statistics, 2008), given that elements of competition are included. ‘Leisure cyclists’ participate in ‘physical recreation’ given that physical exertion is involved, but no formal organised structure is required. Finally, ‘non-competitive cyclists’ appear to engage in ‘organised sport or physical recreation’ given that the activities and events in which they participate are organised by an external organisation or group, although they do not necessarily involve competitive elements. The classification system used by LaChausse (2006) appears to assist in efforts to navigate the divide between transport and recreational cycling, allowing recreational cycling to be
broken down into more distinct categories to offer a foundation for a classification system to be applied in the present study.

To further highlight the need for categories beyond recreational cycling, in research inquiry, studies have also examined concepts such as ‘weekend warriors’ and ‘serious leisure cyclists’ (Brown et al., 2009; O'Connor & Brown, 2007, 2010) to better understand competitive participation outside of formal sport structures. Such cyclists ride in self-organised groups with competitive elements (i.e., trying to better their own performances and/or compete against fellow riders), yet they do so outside of organised sport structures and without specific membership requirements or club affiliations. While such cyclists are typically male, these complexities in cycling participation research contexts highlight the intricate landscape that is cycling participation. Lamont and Buultjens (2011) suggested that in the context of cycling tourism, a range of stakeholders, particularly the tiers of governments, must work together to ensure infrastructure and amenities are supportive of such cycling participation. Efforts to encourage cycling participation seem to require coordination across a range of domains (Austroads, 2010) and as such, a more complete and detailed understanding of participation influences could offer some assistance to cycling stakeholders in efforts to coordinate more integrated, strategic approaches.

In the present study which seeks to examine women’s cycling participation in Australia, it is necessary to look beyond transport and recreational-based cycling to also consider specific categories within the recreational context. Garrard et al. (2012) suggested that “women’s attitudes towards cycling are likely to vary according to the type of cycling, that is, utility, recreational or sport/fitness cycling” (p. 29-220). As such, developing a better understanding of women’s perceptions of a variety of forms of participation and respective influences may provide useful insights to build on the existing literature. Examining perceptions of organised forms of participation, such as club and group-based cycling, event riding and cycle touring activities, could provide additional depth in this regard.
2.8 TOWARDS AN INTEGRATED CONCEPTUAL FRAMEWORK

Having established that participation literature spans multiple domains, with cycling providing a particularly complex example, the remainder of the chapter examines opportunities for cross-disciplinary collaboration toward more detailed understandings. In so doing, the discussion focuses on identifying relevant theoretical strands to draw on in developing an integrated conceptual framework.

2.8.1 Physical Activity and Sport: Opportunities for Collaboration

As was highlighted in the introductory chapter, the World Health Organisation (2004, 2009) has suggested that physical inactivity is a major public health concern and is contributing substantially to the global burden of disease, death and disability. In public health circles, population inactivity levels have been referred to as a ‘pandemic’ with disease management consequences presenting significant economic challenges (Kohl et al., 2012). This complex issue has implications for a range of stakeholder groups internationally, particularly government departments, with sport and recreation departments being no exception (Robson & McKenna, 2008). Initiatives such as the Toronto Charter for Physical Activity (Global Advocacy Council for Physical Activity & International Society for Physical Activity and Health, 2010) and the United Nations supported, Physical Activity 360 program (American College of Sports Medicine, 2012), emphasise the need for a multi-sectorial approach to addressing inactivity levels.

The value of sport as a means of physical activity participation is increasingly being recognised (Casey et al., 2012) and the roles and responsibilities of sport development officers now often relate to contributing to health driven agendas (Bloyce & Smith, 2010). The importance of organised sport structures and recreation facilities in physical activity participation has also been acknowledged in physical activity literature (Bauman et al., 2012). However, it has been suggested that while sport organisations are aware of and acting towards health-related agendas, strategies are often underdeveloped and constrained by resources and competing agendas in attempts to achieve health promotion objectives (Casey,
Payne, & Eime, 2009; Casey et al., 2012; Casey, Payne, Eime, et al., 2009). Inextricable links between sport, physical activity and health are discussed in the literature (Bloyce & Smith, 2010) and appear to provide opportunities for collaboration across participation domains. “Relevant multi-sectoral policies and initiatives are needed to motivate and involve people in appropriate sports and physical activity within supportive environments” (World Health Organisation, 2003, p. 6). A need for collaboration in the context of physical activity and sport research is thus identified.

Berger et al. (2008) examined determinants of sport participation amongst Canadian adolescents in an effort to provide some ‘evidence’ required for effective sport policy development in Canada. It was explained that perceptions of sport participation amongst adolescents were not well understood. “From a management perspective, what seems to be missing at this stage is a clear understanding of the patterns, trends and the potentially unique and beneficial role of … sport participation” (p. 279). In the context of women’s participation, Dixon (2009) effectively brought together strands of exercise psychology literature and women’s leisure participation literature to take a cross-disciplinary approach to examining physical activity and sport programming issues faced by working mothers. The study drew on the work of Shaw (1994), Henderson (1996), Jackson and Henderson (1995), Marcus and Simkin (1993), Bowles, Morrow, Leonard, Hawkins, and Couzelis (2002), amongst others.

Socio-cultural approaches, with roots in leisure management literature and a motivational (or so-called ‘benefits and barriers’) approach derived from exercise psychology literature were used to frame the study (Dixon, 2009). As such, perceived benefits and barriers regarding physical activity and sport were explored, with a further focus on how women negotiated barriers, the ways in which physical activity was perceived as constraining, and implications for program design. These examples demonstrate an increased need for research focused on understanding sport participation perceptions and the relevance of drawing on different branches
of literature in examining issues surrounding participation in physical activity, sport, or physically active leisure.

In a review of sport management literature from the past 20 years, Henderson (2009), a key author in the area of women’s leisure research (Henderson, 1990a, 1990b, 1996; Henderson & Bialeschki, 1991; Henderson & Hickerson, 2007; Henderson et al., 2002; Henderson et al., 2004; Jackson & Henderson, 1995), discussed the existence of a so-called paradox in relation to sport as a form of entertainment (spectatorship) and active sports participation. The author suggested that while journals such as the *Journal of Sport Sciences, Journal of Sport Behavior* and *Journal of Sport and Exercise Psychology* provide outlets for sport participation research, sport management research has typically focused more on sport in the context of spectatorship and entertainment.

In the journal *Sport Management Review*, from 1998 to 2007, Henderson (2009) found only six published articles related to active participation (10 years, 22 issues, N = 104 articles). A further investigation of articles from 2008 to 2012, identified a further six participation-driven publications (5 years, 19 issues, N = 131 articles). This limited focus was suggested to present opportunities for sport management scholars to increasingly engage in participation knowledge generating activities. Henderson (2009) advocated that sport management as a discipline, could benefit from an increased focus on “how sports can be an opportunity for physical activity” (p. 58), given the global significance of this issue. In building on leisure research based approaches to explore participation, sport development appears to be a branch of sport management through which such explorations could and should be framed.

Sport development, as a component of sport management literature and practice, is fundamentally “about participation and promoting the opportunities and benefits of participation” (Shilbury et al., 2008, p. 217). Moreover, sport development is said to relate to policy, marketing, future patterns of sport delivery and development of and through sport, concepts that will be examined in more depth later in this
chapter. In the context of sport policy and development, Bloyce and Smith (2010) explained that “the contribution of sport to ... physical activity targets has frequently been the source of much debate” (p. 112). Those involved in delivering sport are also coming under increased pressure to promote healthy lifestyles alongside, or as a consequence of, sport participation (Bloyce et al., 2008). This has been suggested in part, to be driven by the greater funding potential associated with linking to health agendas. As such, considering how ‘sport’ and ‘physical recreation’, governed and supported by a range of organisations, may be more strategically positioned as a vehicle through which physical activity participation may be achieved, appears sensible.

As a sporting nation, Australia has invested heavily in elite sport initiatives such as national and state institutes of sport in efforts to foster talent and breed success (Shilbury & Kellett, 2011), highlighting the perceived value of elite level success. Australia is generally perceived to be a successful sporting nation, largely a product of the innovative systems and practices to which Australia has grown accustomed (Commonwealth of Australia, 2010). Yet, Australia now faces some of its greatest challenges regarding sport and physical activity participation. “Sporting structures, traditionally focused on delivering high performance success ... through a ‘top down’ approach to sport, have served us well, but new challenges confronting our nation both on and off the sporting field highlight the need for urgent change” (Commonwealth of Australia, 2010, p. 1). In the Australian Government report, ‘Australian Sport: The Pathway to Success’, it was suggested that the world is catching up to Australia in elite sport contexts, while increasing levels of inactivity and sedentary behaviour were presenting as major issues in Australian communities.

In a review of Australian sport funding and policies, Green (2007) suggested that Australia’s previous focus on elite sport achievement is being reassessed, with policies and priorities looking to address sport participation more comprehensively. Increased need to focus on grass-roots and community sports participation was highlighted by the report ‘The Future of Sport in Australia’ (Independent Sport
Panel, 2009). In response, the Australian Government developed the National Sport and Active Recreation Policy Framework to provide a guide for the development and alignment of policies, strategies and programs across all levels of Government (Commonwealth of Australia, 2011). This document placed an emphasis on increasing participation, enhancing international competition and achieving strong national sporting competition, with a desire to support Government-wide objectives including improved health, social inclusion and community development. The collaborative effort required is apparent through these reports. The issues outlined above have been considered in further depth by Rowe et al. (2013).

Along with the definitional overlaps that have been discussed, this shift towards an emphasis on mass participation provides an additional rationale for advocating increased collaboration between sport management, sport development, and physical activity research domains. The broad expanse of participation literature that spans health, sport science, physical education and sport and leisure management appears to lack continuity and consistency. This presents potential difficulties for sport management/development researchers, policy makers and professionals in efforts to understand factors that influence physical activity and sport participation.

From considering the issues surrounding sport and active recreation participation as linked to health agendas, it seems that sport management as a discipline could benefit from a more structured approach to understanding participation. Green (2005) reflected on the lack of theoretical frameworks in sport development research, suggesting “this lack of theory has also impeded the progress of sport development research” (p. 234). Calls are being made for sport provision to include more general definitions encapsulating physical activity and recreation, yet there does not appear to be an established framework to draw on in working toward this goal. This issue will be examined further, in efforts to develop an integrated conceptual framework.
2.8.2 Identifying Relevant Theoretical Perspectives

From a theoretical perspective, models of participation derived from health and behavioural sciences are considered to be further advanced than those applied in social science domains, such as sport management (Alexandris et al., 2002; Beaton & Funk, 2008; Green, 2005; Henderson et al., 2004). Given this, and the emerging trends discussed in the preceding section, it appears prudent to consider established branches of participation literature, specifically from areas of health and behavioural science, and search for logical matches within sport management research agendas and frameworks. A range of perspectives and conceptual frameworks/models has been developed and applied in health and behavioural science research.

Correlates (factors associated with physical activity) and determinants (those with a causal relationship) of physical activity participation have been considered for decades (Bauman et al., 2012; Bauman, Sallis, Dzewaltowski, & Owen, 2002; Sallis & Hovell, 1990; Sallis & Owen, 1999). Sallis and Owen (1999) suggested that this area of research has often been referred to as determinants of exercise adherence. Both modifiable and non-modifiable determinants (now more commonly considered as correlates) of participation were discussed by these authors with modifiable (or changeable) factors suggested to be more appropriate to target in intervention action. Some key modifiable influences that have been found to influence adult physical activity participation include self-efficacy, perceived barriers, perceived benefits, enjoyment of activity and social support (Sallis & Hovell, 1990; Sallis & Owen, 1999).

Theoretical models and frameworks related to physical activity participation have been developed to assist researchers in their quests for understanding, given the range of possible participation influences (Sallis & Owen, 1999). The main applied models in the context of physical activity participation research include the Health Belief Model (Becker & Maiman, 1975), the Theory of Planned Behaviour (Ajzen, 1985, 1991), Transtheoretical model (Prochaska & Di Clemente, 1986; Prochaska &
DiClemente, 1982; Prochaska & Marcus, 1994), Social Cognitive Theory (Bandura, 1986) and ecological models (Sallis & Owen, 1997; Stokols, 1992). When examining such models, it seems that more traditional approaches have drawn on psychological principles in efforts to understand aspects of human behaviour (Glanz et al., 2008), with further extension related to participation settings being considered in later models (particularly ecological frameworks and social cognitive theory). See Sallis and Owen (1999, pp. 111-113) for further details regarding the contribution of such models to physical activity literature.

In a recent review of physical activity correlates, Bauman et al. (2012) suggested that factors at the individual level (such as age, sex, health status and motivation) have too often been the focus of research inquiry, with broader levels of influence receiving less attention. In efforts to broaden the scope of focus, ecological and socio-ecological models (often referred to interchangeably in the literature) have emerged in modern physical activity research as valuable frameworks (Bauman et al., 2012; Elder et al., 2007; Giles-Corti et al., 2005; Lounsbury & Mitchell, 2009; Sallis, Bauman, & Pratt, 1998). Ecological or socio-ecological models (herein referred to as socio-ecological models), consider a range of environmental influences on behaviour. Moreover, such frameworks suggest that health-related behaviour including physical activity, sport and active recreation participation may be influenced by a range of variables.

From a socio-ecological perspective, behavioural influences are considered at multiple levels, including intrapersonal, interpersonal, organisational, community and public-policy levels with interaction between influences at different levels, occurring (Sallis et al., 2008). “Complex interactions between the multitude of individual, cultural and social, physical and policy environmental factors, in the settings in which people live work and play, are studied in an attempt to better predict physical activity behaviour” (Giles-Corti et al., 2005, p. 175). It has also been suggested that by considering environmental characteristics and policy issues, in addition to social and personal influences, socio-ecological models offer more explanatory value than traditional models which consider only intrapersonal and
interpersonal factors (Sallis et al., 2008). Thus a bigger picture is considered, rather than psychological elements of behaviour alone (Giles-Corti, 2006; Lounsbury & Mitchell, 2009).

Socio-ecological approaches may also be used to both understand and promote physical activity participation (Elder et al., 2007; Sallis et al., 1998; Sallis et al., 2006). Environmentally-based, community-oriented approaches, as opposed to person-focused approaches, are being increasingly used to promote physical activity (Stokols, 1996). Person-focused efforts, combined with environment-focused actions allow entire community environments to be adapted to increase the supportiveness of the intended behaviour change. Socio-ecological frameworks are particularly relevant to apply in efforts to understand and promote physical activity, given that such activity takes place in specific places or settings (Sallis et al., 2006). In their review of correlates and determinants of physical activity, Bauman et al. (2012) reiterated that a complex range of factors interacts to influence physical activity participation. “The aetiology of physical activity is complex and varies by domains, such as leisure time and transport” (Bauman et al., 2012, p. 266). The authors noted that the expansion in relation to factors being considered in the context of physical activity participation reinforces the value of ecological approaches in understanding and promoting physical activity. Thus socio-ecological models appear to be increasing in relevance in the context of understanding physical activity, sport and recreation participation.

When examining the suitability of socio-ecological models in the context of sport and active recreation research, Henderson (2009) suggested that such models provide sport management researchers with relevant frameworks for examining sport participation at different levels. Beaton and Funk (2008) and Henderson and Bialeschki (2005) have also reinforced the value of ecological concepts in sport, recreation and leisure research. Despite this, limited research has been identified using socio-ecological models specifically to examine sport and active leisure participation, however, some examples do exist. Early research in this area found that density of exercise facilities, including sport and recreation centres, parks,
swimming pools (amongst other free and pay-per-use facilities), was associated with exercise habits (Sallis et al., 1990). Klein (1993) examined the influence of social and spatial determinants of women’s sport participation. This study found that a range of social and physical environmental factors played an important role in determining women’s participation in sport and recreation. One specific example was the distance to a sport or recreational facility.

Increasingly, research is focusing on sport as a component of physical activity participation. Casey, Eime, et al. (2009) adopted a socio-ecological approach to explore sport and physical activity participation among rural adolescent girls. The study found key socio-ecological influences to be related to a sense of fun, being with friends, family influences and teacher role-modelling. Eime, Payne, Casey, and Harvey (2010) looked at adolescent female participation further to examine transitions in sport and unstructured physical activity. Participation settings, type of involvement (e.g., social or individual activity, organised sport), perceived benefits, motivations and barriers, and enjoyment were examined qualitatively. Findings suggested that girls enjoyed community club sport and found sport a key form of social interaction, yet competing priorities such as striving for academic excellence, led them to pursue more flexible forms of activity that were less enjoyable and more socially isolating.

Given the increasing support for socio-ecological approaches in physical activity research, and its relevance in the context of sport and recreation research, this model formed the basis of an integrated conceptual framework, applied in the present study. The following section outlines the process of developing an integrated conceptual framework, reviewing the conceptual evolution of the model to provide theoretical context, and considering its application in relevant research settings particularly related to cycling participation.

2.8.3 Socio-Ecological Theory: Evolution and Application

To demonstrate the applicability of socio-ecological models in the context of physical activity participation research, Sallis et al. (2008) provided a review of key
research developments. The authors noted that “the physical activity field has advanced from a broad recognition of the importance of environmental influences to the development and testing of specific multi-level ecological models” (p. 471). Sallis et al. (2006) drew on concepts and findings from across fields such as health, behavioural science, policy studies and leisure sciences (amongst others), to create a detailed, multi-layered ecological model, noted as influential to the evolution of this theoretical approach.

Stokols (1996) explained that socio-ecological perspectives in relation to health promotion (and ultimately physical activity promotion) are “based, not on a singular discipline or theory but rather on a broad, overarching paradigm that bridges several fields of research” (p. 285). Social ecology has been explained as a theory that underpins conceptualisations of the socio-ecological model and acts as an “overarching framework or set of theoretical principles, for understanding the interrelations among diverse personal and environmental factors” (p. 283). A complex interplay of factors related to individuals and their environments are suggested to influence behaviour. From this perspective, socio-ecological models are systems-oriented frameworks that provide insight into the complex and dynamic interactions that occur between individuals and surrounding environments (Lounsbury & Mitchell, 2009).

Given the complex nature of socio-ecological models, basic evolutionary details are useful to consider. Bronfenbrenner (1979) developed an ecological systems theory which formed a base for the evolution of socio-ecological theory. Ecology, which broadly encompasses interrelations between organisms and their environments (Hawley, 1950), was used to create a framework which explained human development. According to Bronfenbrenner (1979), ecology, as it relates to human development, involves investigating and understanding the ways in which growing human beings interact with the dynamic nature of their surroundings. It also, at a deeper level, relates to the variety of settings to which one is exposed and the relative place of such settings and environments within the larger context of the
world. Such interactional relationships between a person and his or her environment is suggested to be two-directional or reciprocal.

The ecological environment is comprised of the micro-, meso-, exo- and macrosystems, generally conceived as a nested arrangement of structures or constructs, that is embedded within a larger context (Bronfenbrenner, 1979). In this model, the innermost circle representing a microsystem includes “a pattern of activities, roles and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics” (p. 22). The next layer outward represents a mesosystem, which “comprises the interrelations among two or more settings in which the developing person actively participates (such as, for a child, the relations among home, school and neighbourhood peer group; for an adult, among family, work and social life)” (p. 25). The third layer forms an exosystem which refers to “one or more settings that do not involve the developing person as an active participant, but in which events occur that affect, or are affected by, what happens in the setting containing the developing person” (p. 25). Finally, the macro system or outer most layer, “refers to consistencies, in the form and content of lower-order systems (micro-, meso- and exo-) that exist, or could exist, at the level of the subculture or the cultures as a whole, along with any belief systems or ideology underlying such consistencies” (p. 26).

The work of McLeroy, Bibeau, Steckler, and Glanz (1988) helped shape the current conceptualisation of socio-ecological models, particularly in the context of health behaviour. The ecological perspective presented by these authors regarding health promotion programs and determinants of behaviour, were broken into five levels of influence. These included intrapersonal factors (individual characteristics such as knowledge, attitudes, behaviour, self-concept and skills), interpersonal processes and primary groups (formal and informal social network and social support systems), institutional factors (social institutions with organisational characteristics and formal or informal operational rules and regulations), community factors (relationships among organisations, institutions and informal networks within
defined boundaries), and public policy relating to local, state and national laws and law policies (McLeroy et al., 1988).

These levels explained the range of health promotion interventions being implemented. From these two reference points, a general hierarchical system has been established to classify a range of individual and social related factors, said to determine behaviour of individuals and/or populations. These levels of influence range from key individual factors, to larger, external sources of influence. The theories and models discussed, however, did not consider the physical environment as a key determinant of behaviour. It was Moos, (1979) who considered both physical environmental characteristics and ecological characteristics as determinants of health behaviour, which now form part of ecological models applied in physical activity research. Determinants were classified within four categories as explained by Sallis et al. (2008):

- Physical settings: natural and built environment.
- Organisational settings: size and function of worksites and schools.
- Human aggregate: socio-cultural characteristics of people in an environment.
- Social climate: supportiveness of a social setting for a particular behaviour.

Similarly, Stokols et al., (1992; 2003), Sallis and Owen (1997), and Sallis et al. (2008) further developed the ecological health perspective to incorporate the physical environment and further enhance the field of social ecology. The basic four assumptions of this model were that physical environments, social environments and personal attributes all influence the health behaviour of individuals; environments are multi-dimensional; human-environment interactions occur at varying levels of aggregation (individuals, families, cultural groups, whole populations); people influence their settings, and the changed settings then influence health behaviours (Sallis et al., 2008).

This range of perspectives explains only important milestones in the evolution of socio-ecological theory. It can be seen from these developments that socio-
ecological models could potentially take a range of forms and be conceptualised in different ways depending on the issues they address. Such models provide frameworks for understanding a range of determinants of health-related behaviour and may be moulded and adapted to suit specific situations (Lounsbury & Mitchell, 2009). While the model’s appearance may be altered, the general principles remain the same. Social ecology acts as an overarching framework or set of theoretical principles that assist researchers and practitioners to understand interrelations between a wide range of personal and environmental factors that impact human behaviour (Stokols, 1996).

Depending on the situation or problem at hand, socio-ecological models may range from three to five layers. Figure 2.2 provides a generic example of a basic three-layered version of a socio-ecological model, based on the work of Stokols (1996). As knowledge has advanced in this area, the influences of characteristics of the built environment, in addition to policy-related issues, have increasingly been recognised (Sallis et al., 2008). While research has suggested the built environment has a role to play in determining physical activity participation, it is the complex interactions across the levels of individual, social, physical and policy-related environments that require further examination (Sallis et al., 2008). While still dominated by a focus on understanding individual determinants of physical activity participation, research is increasingly beginning to focus on expanding this lens to consider broader, environmental contexts (Bauman et al., 2012).

Figure 2.2: Socio-Ecological Model - Three Levels
Research that draws on socio-ecological models is also evolving to consider context-specific participation (Bauman et al., 2012). That is, socio-ecological models have been suggested to offer additional insight when used to predict specific forms of activity, rather than physical activity more generally (Giles-Corti et al., 2005). Authors have both hypothesised (Pikora et al., 2003) and found that different correlates influence transport-related walking and cycling more than recreational participation (Owen et al., 2004; Saelens et al., 2003).

The preceding discussion sought to add context to socio-ecological theory, by highlighting key evolutionary developments. The socio-ecological model’s consideration of physical environmental characteristics and policies seems particularly valuable in the context of cycling participation research, given that transport-related research (focused largely on infrastructure and related planning) is one of the dominant bodies of cycling participation literature (as discussed earlier in the chapter). Socio-ecological models appear to offer a suitable approach to take in order to straddle discipline areas to provide a more holistic view of participation than other models. Further to this, Australia’s cycling strategy and related investment to support cycling is largely oriented towards infrastructure (Austroads, 2010). As such, it was imperative that a framework be identified that considers physical settings in which participation takes place. Socio-ecological models will now be considered in the context of previous cycling research, in search of a relevant conceptualisation to use in developing an integrated conceptual framework for the present study.

### 2.8.4 Socio-Ecological Theory: Application in Cycling Research

Socio-ecological models have often been used to examine cycling participation influences. Bauman et al. (2008) explained that barriers to and facilitators of cycling tend to fall within four main categories: individual factors; policy/regulatory factors; social environmental factors; and physical environmental factors. Garrard et al. (2006) also discussed barriers to and facilitators of participation, focusing on socio-ecological influences. Emond et al. (2009) undertook a study which focused on
identifying gender differences in bicycling perceptions and behaviour using a socio-ecological framework. Daley et al. (2007) also drew on socio-ecological theory in examining cycling participation influences reported by cyclists and non-cyclists in Sydney. Consideration of such cycling participation literature provides further rationale as to the relevance of socio-ecological perspectives in exploring women’s participation and also provides direction regarding how this may be achieved.

The conceptualisation of socio-ecological theory applied by Bauman et al. (2008) provides a clear and established form of the theory, relevant to the Australian cycling participation landscape. As such, it formed the basis of the framework used in the present study. Categories applied by Bauman et al. (2008) can be seen in Figure 2.3. Each dimension is comprised of a series of related constructs, which are discussed in the literature. The Victorian Curriculum and Assessment Authority (2010) provided a comprehensive explanation regarding relevant variables associated with socio-ecological influences. These have been summarised in Table 2.3.

**Figure 2.3: Socio-Ecological Model - Cycling Behaviour**

![Socio-Ecological Model - Cycling Behaviour](source: Bauman et al. (2008, p. 11). Copyright Cycling Promotion Fund. Re-produced by Permission.)
### Table 2.3: Socio-Ecological Influences - Physical Activity Participation

<table>
<thead>
<tr>
<th>Environmental Dimension</th>
<th>Associated Variables</th>
</tr>
</thead>
</table>
| **Individual Environment** | - knowledge, attitudes, behaviours, beliefs, perceived barriers, motivation, enjoyment  
- skills (including fundamental motor skills and sport-specific skills), abilities, disabilities or injuries  
- age  
- sex  
- level of education  
- socio-economic status  
- employment status  
- self-efficacy |
| **Social Environment** | - family, such as the influence of parental and sibling physical activity levels and family support  
- spouse or partner  
- peers  
- institutions and organisations, such as schools, workplaces and community organisations  
- access to social support networks versus social isolation  
- influence of health and other professionals such as doctors, teachers and coaches  
- community norms  
- cultural background  
- socio-economic status of the community |
| **Physical Environment** | - natural factors such as weather or geography  
- availability and access to facilities such as parks, playgrounds, sporting grounds, gymnasiums, walking or cycling tracks  
- aesthetics or perceived qualities of facilities or the natural environment  
- safety such as crime rates or amount and speed of traffic  
- community design such as connectivity of streets, living in a cul-de-sac, density of housing or land use  
- public transport |
| **Policy/Regulatory Environment** | - urban planning policies  
- active transport policies  
- education policies such as mandating time for physical education classes  
- sport policies  
- health policies  
- environmental policies  
- workplace policies  
- funding policies |

Adapted from: Victorian Curriculum and Assessment Authority (2010)
When examining socio-ecological influences, while a range of factors across different socio-ecological categories have been shown to influence participation, some personal factors such as self-efficacy, skill level and perceived level of risk particularly influence women’s cycling participation (Cycling Promotion Fund & Heart Foundation, 2013; Daley et al., 2007; Garrard et al., 2006). Risk perceptions were suggested to be determined in part by environmental conditions, meaning physical environmental influences and policy-related factors were also influential. However, as discussed earlier in the chapter, it was particularly women’s perception of risk that was a major barrier and Parkin et al. (2007) suggested that cycling facilities, particularly on routes where motorised traffic flows, have very limited effects on risk perceptions. Despite this, it seems that a combination of individual perceptions and physical environmental characteristics may influence women’s risk perceptions and ultimately participation. This is where aspects of the socio-ecological theory could provide further insights to examine interactions between sources of influence.

Physical activity literature has been identified as a key area of research relevant to the present study, in which the socio-ecological model sits alongside behavioural and attitudinal research into cycling participation. Given that opportunities exist for sport management literature to advance through collaboration with physical activity literature, and that drawing on sport development literature (a branch of sport management literature) was identified as a possible way this might be achieved, such literature will be considered in the following section.

2.8.5 Sport Development Literature: Links with Physical Activity Literature

The branch of sport management literature referred to as ‘sport development’, specifically considers participation (Shilbury et al., 2008). “Sport development systems have two main objectives: to increase the number of participants actively engaging in sport and to enhance the quality of performers in sport” (Green, 2005, p. 233). Sport development as a broad heading also encapsulates “policy,
development *through* sport, development *of* sport, future patterns of sport delivery and marketing in terms of the relationship between professional sport and participation” (Shilbury et al., 2008, pp. 217-218). Opportunities also exist for a more advanced understanding of participation perceptions and influences to be gained through sport development research (Berger et al., 2008). The purpose of this discussion is not to provide a complete review of sport development literature. Rather, by examining sport development concepts, opportunities for cross-disciplinary collaboration could be identified.

Sport development may be divided into two distinct categories, development *of* sport and development *through* sport (Houlihan & White, 2002; Shilbury et al., 2008). While both relate to encouraging sport participation, differences between purpose and desired outcomes within the two streams are evident. Development *of* sport focuses on elite progression-oriented actions, nurturing talent to encourage elite level success, while development *through* sport is concerned with how sport can be used to achieve community wellness goals and the like (Shilbury et al., 2008). Participation may be thought of from a development *of* sport perspective (Berger et al., 2008), where mass participation forms a basis for talent development. However, the premise of development *through* sport also supports the concept of participation.

A recent study conducted by the CSIRO and Australian Sports Commission (Hajkowicz et al., 2013), identified six megatrends (important patterns of social, economic or environmental change), relevant to Australian sport. One megatrend discussed was termed ‘more than sport’ explaining that increasingly, “governments are incorporating sport into policies to tackle adult and childhood obesity, and improve community wellbeing” (p. 15). This can be likened to development *through* sport action. In efforts to promote cycling participation for community benefits such as improved health, reduced traffic congestion and increased social interaction, the link with concepts of development *through* sport (and recreation) are clear.
It was established earlier that some ambiguity exists with respect to distinguishing between the concepts of sport and recreation. When considered together in organised forms, the two display many similar attributes (Australian Bureau of Statistics, 2008). From a community sport perspective, Hylton and Totten (2008) suggested that sport development should encompass not only competitive sporting options, but also more informal aspects such as recreation and active leisure. The authors explained that many conceptualisations of sport development use hierarchical approaches which outline the pathways to sport excellence. This was also noted by Green (2005), and similarly by Shilbury et al. (2008), in their explanations of development of sport concepts. Conversely, community sport development, as explained by Hylton and Totten (2008), seems to be more closely aligned with development through sport initiatives (see Hylton and Totten, 2008, p. 80), and, thus, provides a relevant perspective for the present study.

The community sport development continuum proposed by Hylton and Totten (2008) suggests that sport development action may be classified along a continuum, where at one end, the emphasis is purely on sport-related development outcomes, while at the other, initiatives are predominantly focused on community wellbeing. “Different aspects of practice can be located with different degrees of emphasis along the continuum. At one extreme is ‘sport in the community’ ... At the other extreme is sport as ‘community development’ where sport is simply a means to human development” (Hylton & Totten, 2008, p. 80). It is clear from the preceding discussion that sport and active recreation/leisure participation are crucial to all aspects of sport development. As such, drawing on sport development literature in research focusing on participation, appears a logical approach.

In earlier discussions, it was highlighted that while Cycling Australia has traditionally focused on organised cycling participation through club and competition structures, it now offers membership options for recreational riders. To support the ‘cycling for all’ approach, ‘silver’ recreational memberships were developed, providing members with opportunities to participate in social rides, club training and coffee-crew rides with basic insurance provided while participating in organised rides
(Cycling Australia, 2011b). Similar to Swimming Australia, Cycling Australia gives the impression that recreational participants are of importance to the organisation, whether as potential representative athletes, a means to raise the profile and exposure of the sport, or as a measure of the physical activity-related and ultimately health-related impact of their sport. Given the ambiguity discussed in identifying a clear distinction between sport and active recreation (Australian Bureau of Statistics, 2008), it seems the two are inextricably linked within many sports where people begin participating in a form of the sport for leisure-related purposes which provides mental and or physical gains, yet in the long run may result in organised participation or participation at a competitive level (or vice versa).

In order to further demonstrate the relevance of socio-ecological models in sport and active recreation participation, the work of Vail (2007), from a sport development perspective on participation, holds particular relevance. The aforementioned research applied a community approach to sport development, with a specific focus on tennis. It was explained that issues related to declining participation were not being solved through traditional top-down approaches and promotional efforts that did not link to community needs. A range of needs was identified through research with direct linked action being taken at community level in response to identified issues (Vail, 2007). Similarities may be observed between the community sport development approach taken by Vail (2007) and principles of socio-ecological theory, where environments may be adapted to support participation.

The value of “enabling local leaders to identify their needs and implement solutions that both benefit the community and increase sport participation” (Vail, 2007, p. 593) was highlighted by the authors as a key research implication. At the community level, a complex range of factors was found to be impacting tennis participation. The action research approach sought to identify the key challenges and barriers to participation, and to adapt environments to encourage increased participation. This example highlights some of the key overlaps between socio-
ecological models and sport development research and practice. The key principles relate to identifying gaps and barriers within the community (or environment), and making changes to encourage and support participation. The socio-ecological dimensions appear to offer structural support to sport development research in efforts to identify gaps and needs within communities and develop appropriate strategic responses.

2.9 INTEGRATING BODIES OF LITERATURE: STRENGTHENING PARTICIPATION KNOWLEDGE

Given the interaction between health, recreation and sport within the context of cycling, the present section outlines how a health and physical activity derived model was integrated with sport development concepts, to provide a framework to guide the present study of women’s cycling perceptions and behaviour. Further discussion related to the integrated conceptual framework has been provided by Rowe et al. (2013).

Figure 2.4 brings together sport development concepts and socio-ecological theory, suggesting that a range of environmental characteristics may influence participation in different forms of sport and recreation. As noted earlier in the chapter, socio-ecological models have been suggested to provide greater predictive capacity when examining specific behavioural outcomes (i.e., recreational versus transport-related cycling), as opposed to more general outcomes (i.e., cycling participation generally) (Bauman et al., 2012; Giles-Corti et al., 2005; Owen et al., 2004; Pikora et al., 2003; Saelens et al., 2003).

Figure 2.4 shows that cycling participation outcomes may be framed using community sport development concepts proposed by Hylton and Totten (2008). Drawing on classifications of cyclists used by LaChausse (2006) and definitions related to sport, recreation and physical activity provided by the Australian Bureau of Statistics (2008), forms of cycling may generally be plotted along a community sport development derived continuum of participation. Elite progression-oriented
initiatives and outcomes (typically more organised and competitive) exist at one end of the continuum and are classified as being more purely and traditionally related to sport development. At the opposite end of the continuum, are community development-oriented participation outcomes related to participation (less organised, more leisure/recreation, transport-oriented). This system of classification is based on how strongly participation outcomes correlate with specific agendas and the extent to which activities require management input from an external organisation or group. It is acknowledged, however, that those activities towards the middle of the continuum are likely to relate to both community wellbeing and sport-related agendas.

Figure 2.4: Integrated Conceptual Framework

Source: Rowe, Shilbury, Ferkins, and Hinckson (2013, p. 10). Copyright Elsevier. Reproduced by Permission
The proposed framework contends that factors within the socio-ecological environment may influence participation across the continuum differently. Towards the pure sport development-related participation end of the continuum, specific environmental factors may influence competitive cycling progression for individuals. While at the other end of the continuum, different environmental factors may influence community-oriented cycling participation outcomes, such as commuter cycling. Scope for variation along the continuum logically exists.

The present study seeks to examine how women’s participation in, and perceptions of, different forms of cycling along the continuum may be influenced by different socio-ecological environmental factors. The integrated conceptual framework facilitates a more holistic understanding of influences along the continuum. Furthermore, the cycling education context selected allows for changes in influences in response to education to be explored.

Given the issues discussed with respect to cycling delivery, as a result of the range of stakeholders involved, strategically the model developed presents an opportunity to identify specific socio-ecological factors that influence community sport-related outcomes (such as active leisure participation), and elite progression outcomes (such as club participation). As such, there may be potential for more collaborative and targeted approaches. For example, by identifying those socio-ecological factors that influence women’s participation across the entire community sport development continuum (organised, competitive cycling through to self-organised commuter cycling), collaborative interventions may be recommended. In addition to this, those factors that impact only specific points on the continuum may best be handled by specific cycling stakeholders (transport stakeholders as opposed to sport stakeholders).

The proposed framework contributes to knowledge by providing a more developed and structured means of achieving cross-disciplinary thinking and collaboration with respect to participation. By using an established framework applied in physical activity research contexts, and linking it to sport development thinking, the
researcher aims to assist in guiding others toward a more collaborative, developed understanding of complex issues surrounding participation.

The proposed framework appears particularly relevant in the context of activities such as cycling, where participation may be engaged in for a range of purposes (transport, recreation, sport). However, the framework could also be relevant in the context of other activities that can be engaged in as a form of sport, recreation or physical activity such as walking, running, swimming or rowing, to name a few. As such, the discussed framework appears to provide opportunities for research collaboration across sport management, development and physical activity domains.

2.10 SUMMARY AND RESEARCH AIM

Having established in Chapter One that global rates of physical inactivity are of major concern with respect to population health, Chapter Two presented literature relevant to this issue with a specific focus on women’s cycling participation in Australia. Participation was discussed as a broad, complex issue with implications for a range of stakeholder groups across multiple discipline areas. As such, opportunities for cross-discipline approaches were considered in the context of better understanding participation influences. Cycling was positioned as a particularly complex form of participation, given that cycling is an issue linked to several agendas including, health, sport, recreation, transport and the environment. The low rate of cycling participation amongst Australian women reinforces the need for research in this area, with opportunities existing to explore cross-disciplinary research approaches within this context.

Cycling participation research was often found to use socio-ecological models to frame influences on participation. However, such research had not sufficiently examined how influences varied between forms of cycling participation. Moreover, given that cycling may take place in a range of environments, where infrastructure and transport policies may impact perceptions and behaviour, it seems appropriate
to draw on socio-ecological theory in developing a conceptual framework for present study.

In examining models from the areas of physical activity promotion (health and behavioural sciences) and sport development (sport management), socio-ecological models, and community sport development concepts appeared to present a logical match in developing a framework for the present study. As such, the integrated conceptual framework proposed offers a multidisciplinary approach to examining cycling participation, and signals a call for sport management researchers to increasingly draw on socio-ecological concepts in the context of sport management and development research. The conceptual framework developed contributes to knowledge by providing a structured way to consider participation from multiple perspectives simultaneously, toward a more comprehensive understanding and more collaborative strategic responses.

In light of the research gaps identified with respect to women’s cycling participation and the past lack of emphasis on understanding factors that influence participation in different forms of cycling, the present study seeks to examine such issues in Australia, using the conceptual framework as a guide. Furthermore, in the absence of an established body of research focusing on cycling education programs, and based on research which suggests that women’s cycling participation is largely constrained by factors such as lack of confidence and skills, an appropriate context for the study was considered to be cycling education programs. Using the integrated conceptual framework developed, the present research aims to:

*Examine socio-ecological influences on Australian women’s cycling participation, in the context of cycling education.*

Having provided a review of literature and outlined the conceptual framework and the main study aim, Chapter Three focuses on the specific research questions posed and used to guide the study toward achieving the above-stated research aim. Details related to the research philosophy and relevant processes are also outlined in depth.
CHAPTER 3: METHOD

In Chapter Two, a review of literature was presented, the conceptual framework used to guide the study was explained and the aim of the research was established. Chapter Three outlines the specific research questions developed to guide the study and achieve the stated research aim. Furthermore, the methodological considerations, including the philosophical underpinnings of the research, the use of qualitative methods and the processes used to collect and analyse data are outlined. This chapter concludes by discussing ethical considerations and issues of quality and credibility related to the study.

3.1 RESEARCH QUESTIONS

Four research questions have been developed to address identified literature gaps and support the research aim. Such questions are guided by the integrated conceptual framework developed for the study and outlined in Chapter Two. As was established earlier in the thesis, cycling may be considered a complex activity given it can be engaged in as a form of sport, recreation or transport. Furthermore, it was highlighted that a wide range of socio-ecological factors may influence participation, particularly related to different forms of cycling. While research does exist in relation to this issue, only a small fraction is dedicated specifically to women’s participation, and such research has often focused on examining cycling more generally, or has mainly considered transport or recreational cycling. A need to further examine specific factors that influence participation in different forms of cycling was identified in the literature. Furthermore, a number of studies noted that physical activity participation research should increasingly examine socio-ecological factors that influence context-specific participation (such as commuter cycling, recreational cycling, or sport-oriented cycling), as opposed to a general category of activity (e.g., cycling). As such, research question one focuses on these issues, drawing on the conceptual framework proposed.
RQ1: What factors influence women’s participation in different forms of cycling?

The second aspect of the stated research aim specifically relates to cycling education experiences. Despite the logical match between cycling education objectives and participation barriers reported by women and the fact that a number of relevant reports and policies have advocated education as a component of cycling promotion strategies, a review of literature uncovered very limited knowledge in this area. The few studies that had focused on cycling education as an intervention found that some positive experiences and outcomes were reported by participants (Garrard et al., 2006; Telfer et al., 2006), however the mechanisms through which such outcomes occurred were not examined in depth.

Two research questions are posed with a view to enhancing understanding of the influence cycling education may have in the context of women’s participation. A further focus has been placed on considering the influence of education on perceived socio-ecological influences ascertained in question one. As such, questions two and three ask:

RQ 2: Why do women enrol in cycling education courses?

RQ 3: What perceived outcomes do female cycling education participants report in response to course participation?

Research question two seeks identify factors that motivate women to enrol in cycling education courses and as such their desired outcomes. In relating these considerations to the conceptual framework, this question examines the socio-ecological factors women seek to target through enrolment in cycling education. This may be contrasted with research question three which focuses on gaining an understanding of the perceived outcomes women experience after they have participated in education courses. This question also seeks to establish the role of this specific intervention in targeting socio-ecological factors in a manner that supports participation.
Despite an assumption that women would benefit from education courses, given the lack of existing research it was difficult to establish the ways in which such benefits might be derived. Furthermore, given that research has indicated that multifaceted interventions are required to encourage participation in behaviour such as cycling, it was not expected that cycling education alone would result in major changes in participation or dramatically altered perceptions. Rather, this research question seeks to uncover the specific outcomes that education provides to participants, while research question four is posed with the intention of determining what factors remain unchanged as influences on different forms of participation. More specifically, RQ4 seeks to identify those factors within the socio-ecological environment that continue to constrain women’s participation in specific forms of cycling, post education. This is relevant to consider, given such factors will likely require specific targeted action (in the context of a multifaceted program), if education is to be effectively used to promote women’s participation in specific forms of cycling.

RQ 4: What additional strategies are required to increase women’s participation in different forms of cycling?

Daley et al. (2007) noted that “there is limited published qualitative research into people’s thoughts about cycling” (p. 43). Such observations and a desire to explore complex issues surrounding participation resulted in the researcher taking a qualitative approach, with particular reference to interpretivist paradigms. For this reason, a research aim and supporting research questions were developed from the literature, rather than establishing a set of hypotheses to be tested quantitatively. Having now outlined the aim of the study and the research questions that guide the inquiry, methodological considerations related to research paradigms, participant recruitment and methods of data collection and analysis are presented.

3.2 IDENTIFYING THE RESEARCH PARADIGM

Paradigms in social research are frameworks, sets of beliefs and assumptions that can guide researchers in their methods of inquiry (Kuhn, 1962). Guba and Lincoln
(1994) defined paradigms as “the basic belief system or world view that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways” (p. 105). More practically, paradigms are conceptual or philosophical frameworks that facilitate organised research. Qualitative and quantitative research methods have been discussed as paradigms by some (Deshpande, 1983); however, more broadly speaking, paradigms such as positivism, postpositivism, interpretivism and critical theory act as overarching guides to the implementation of such methods (Gephart, 1999).

Research paradigms consist of three key elements which are specific to each world view (Guba & Lincoln, 1994; Healy & Perry, 2000). These include ontology, which relates to the nature of reality; epistemology, which considers the relationship between a researcher and the known; and methodology, which focuses on how one knows the world or gains knowledge of it (Denzin & Lincoln, 2000, 2005). Each world view has distinct ontological, epistemological and methodological perspectives, which often results in conflicts between competing paradigms.

Edwards and Skinner (2009) discussed paradigms in sport management research considering the work of Guba and Lincoln (1994, 2005) and Lincoln and Guba (2000). Gaining a basic understanding of major paradigms assisted the researcher in selecting a paradigm to guide the present study. Positivism suggests that true reality (ontology) can be studied, captured and understood independent of human perception and interpretation (Sale, Lohfeld, & Brazil, 2002). Positivist researchers search for facts and correlations among variables (Gephart, 1999). Postpositivism (commonly referred to as realism), argues that reality can only ever be approximated, and never fully apprehended (Guba, 1990). These two paradigms often aim to test theories, and are assessed heavily based on internal and external validity (Denzin & Lincoln, 2005). Constructivism (and interpretivism) break away from positivist and postpositivist paradigms and propose a relativist ontology (the existence of multiple realities) (Denzin & Lincoln, 2005). Critical theory suggests the existence of a “virtual reality, shaped by social, political, cultural, economic, and gender values; crystallised over time” (Denzin & Lincoln, 2005, p. 193).
Debate exists regarding the merit of qualitative and quantitative methods and their associated paradigms. Quantitative research, often based on positivism (Sale et al., 2002) has been criticised given that research measures can strip context and meaning from data in pursuit of statistical relationships (Guba & Lincoln, 1994). Qualitative research, largely shaped by interpretivist views, proposes that reality is socially constructed and constantly changing, thus multiple realities or truths exist, based on one’s interpretation of reality (Sale et al., 2002). Criticisms of such paradigms have been suggested to relate to the subjectivity and potential biases associated with data collection and analysis processes (Gephart, 1999).

While paradigms hold differing viewpoints, two polarised paradigmatic ‘camps’ based on axiology (axiology being a branch of philosophy dealing with ethics, values, aesthetics and religion) and ontology appear to exist. Reality is either considered to be predominantly objective in one camp, and subjective in the other. Denzin and Lincoln (2000) add to this by explaining that the key point of difference between positivist paradigms and interpretivist paradigms hinges on science being viewed as a means of better understanding human action (interpretivism), as opposed to the traditional view of science as a means of providing causal explanations (positivism).

When establishing the research paradigm of the present study, the nature of the research problem and the researcher’s personal interpretation of the world were considered. A researcher’s philosophical perspective is often shaped by factors such as education, political orientation, gender, race, class and other world experiences (Edwards & Skinner, 2009). Whether consciously or unconsciously, researchers have an internal framework or system of beliefs that govern the way they perceive the word and their relative place in it.

This exploratory research seeks to better understand human action (Denzin & Lincoln, 2000), in this case, women’s cycling participation (an under-researched area). Establishing a conclusive cause-and-effect relationship between cycling education and cycling participation or between a specific set of environmental
factors and participation was considered an inappropriate response to the research problem. Furthermore, a lack of sufficient literature restricted the formulation of clear hypotheses required to inform a positivist approach. Interpretivist perspectives and paradigms are therefore deemed to be the most relevant to consider.

Critical theory and constructivism were discussed by Guba and Lincoln (2005) as predominantly interpretivist paradigms applicable to such research problems. Critical theory research recognises that “claims to truth are always discursively situated and implicated in relations of power” (Kincheloe & McLaren, 2005, p. 327), and critical theorists see their purpose as researchers being to identify factors and conditions that influence people’s lives, in order to empower individuals to advocate societal change (Edwards & Skinner, 2009). Given this study sought to examine cycling participation influences, in the context of cycling education rather to employ a method which would empower individuals and drive societal change, critical theory was not deemed to be the most appropriate interpretivist paradigm for the present study.

The constructivist-interpretive paradigm focuses on reconstructed understandings in social contexts (Denzin & Lincoln, 2000, 2005). This ontologically relativist paradigm (existence of multiple realities), perceives meaning to be constructed, rather than discovered, and different people may ascribe different meanings to the same phenomenon (Crotty, 1998). Key features of the constructivist-interpretive paradigm relate to its subjective epistemology and naturalist methodological procedures. As such, understandings are believed to be co-created by the knower and the respondent, and methodological procedures adopted facilitate knowledge of the world being gained in natural settings (Denzin & Lincoln, 2000, 2005). Of particular importance is that from this philosophical standpoint, researchers cannot speak with certainty with respect to research findings, as they reflect interpretations rather than absolute reality (Edwards & Skinner, 2009). A logical fit between the research problem and the constructivist-interpretive paradigm appears to exist. As such, it serves as the predominant guiding research philosophy.
The practical implications of such a philosophical standpoint are that the researcher ultimately looked for meaning among people’s subjective assessments of their cycling experiences. The study did not seek to understand how all Australian women view different forms of cycling. Rather, the perceptions of women enrolled in specific cycling education courses were examined to identify patterns of similarity and difference between groups from different locations, levels of cycling education, age groups and the like. Through observing and questioning, an understanding of individual perceptions of cycling environments and experiences, within the context of each individual’s circumstance, was a key focus. Getting to know participants was considered integral to interpreting their responses in a reflective manner.

3.3 QUALITATIVE RESEARCH

Within a constructivist-interpretive paradigm, qualitative methods provide an appropriate way to capture reconstructed understandings of real-world settings. Qualitative methods are increasingly accepted as a valid, if not mainstream, approach to research (Denzin & Lincoln, 2005; Yin, 2011). This is particularly true in the case of studies that aim to answer ‘what’, ‘how’ or ‘why’ questions in relation to a specific phenomenon, rather than questions related to ‘how many’ or ‘how much’ (Green & Thorogood, 2004). In shaping inquiry, qualitative researchers focus on socially constructed realities and the intimate relationship between the researcher and phenomenon, in addition to situational constraints (Denzin & Lincoln, 2005).

Key features of qualitative or naturalistic research were described by Miles and Huberman (1994). These included: intense and/or prolonged contact with the field or life situation; the researcher’s role in gaining an holistic overview of the context; perceptions of local ‘actors’ are captured by researchers from the inside; and, the ways in which individuals understand, account for and take action in particular settings are key to understanding; amongst others. Yin (2011, pp. 7-8) also outlined five features of qualitative research:
1. Studying the meaning of people’s lives under real-world conditions.
2. Representing the views and perspectives of people in the study.
3. Covering the contextual conditions within which people live.
4. Contributing insights into existing or emerging concepts that may help to explain human social behaviour.
5. Striving to use multiple sources of evidence rather than relying on a single source alone.

As noted by Daley et al. (2007), limited published qualitative research exists focusing on people’s perceptions of cycling. As such, it was important to comprehend the nuances of women’s cycling perceptions and behaviour by gaining a deep level of understanding of participant experiences. “Qualitative methods can be used to obtain intricate details about phenomena such as feelings, thought processes and emotions that are difficult to extract or learn about through more conventional methods” (Strauss & Corbin, 1998, p. 8). A qualitative approach was therefore deemed appropriate to ensure that an adequate degree of depth was obtained from which understanding could be developed. Silverman and Marvasti (2008) suggested that generally, qualitative researchers see value in sacrificing research scope for depth and detail, gaining a more thorough understanding of phenomena and the meanings brought to them by individuals, in natural settings.

A number of established qualitative research methods exist and have been applied within the domain of sport and physical activity research. Creswell (2007, 2013) explained that when undertaking qualitative research, researchers are faced with an overwhelming range of options. However, five key approaches exist. These include narrative research, phenomenology, grounded theory, ethnography and case study research. Edwards and Skinner (2009) expanded on these five to also include action research and conversation analysis in the context of sport management research. Yin, considered a key author of case study research methods (1994, 2003, 2009), has also presented a more generalised approach to qualitative research design (Yin, 2011). Here, the author discussed qualitative research approaches and noted that while formalised qualitative methods exist a researcher does not necessarily need
to adopt an established method in designing a qualitative study. Stake (2010) concurred with this stance, noting that while established qualitative methods, protocols and approaches exist, and can save researchers time and increase meaningfulness, few such methods will perfectly suit the research issue and questions at hand. As such, more generic approaches to qualitative research may be applied.

Similarly to Creswell (2007, 2013), Yin (2011, p. 17) provided 10 examples of accepted qualitative methods, but noted that employing one form of qualitative research (e.g., case study research), can overlap with other forms (ethnography). As such, it was suggested that researchers should be sensitive to variations in such methods, although they need not necessarily choose one specific established method. “Strong, if not exemplary, studies can be conducted under the general label ‘qualitative research’ or ‘field-based study’ without resorting to any of the variations” (Yin, 2011, p. 16). Flick (2009) concurred, suggesting that while an established qualitative method may form the starting point for a study, researchers can combine aspects of different established methods to create a research design that suits the research problem and conditions.

In order to examine issues related to women’s cycling participation and the role of cycling education, an approach that facilitates a deep level understanding of the phenomenon is required. A balance between providing insight into a number of participants across a range of education groups, and gaining a sufficient level of depth in participant responses, is needed. Three of the established methods including ethnography, phenomenology and case study method, informed research design, although none of the specific variants was strictly followed, in line with the contention of Yin (2011). In ethnographic studies the researcher participates overtly or covertly in the day-to-day lives of individuals over an extended period, listening to what is said, observing behaviour, and asking questions or interviewing participants (Creswell, 2007; Hammersley & Atkinson, 1995). Atkinson and Hammersley (1998) explained that ethnographic research has a strong focus on:
- Exploring the nature of a social phenomenon, rather than testing hypotheses.
- Collecting and analysing unstructured data that does not possess a closed set of analytic categories.
- Investigating a small number of cases, or even just one case, in detail.
- Analysis that involves explicit interpretation related to the meanings and functions of human actions.

Phenomenological research examines how a number of individuals ascribe meaning to ‘lived experiences’ of a phenomenon or a concept (Creswell, 2007). Perspectives on phenomenology vary, both practically and philosophically, with Husserl’s and Heidegger’s distinct viewpoints highlighting such complexities (Dowling & Cooney, 2012). What is common to all forms of phenomenology is that they are concerned with the lived experience (Cohen, 2000; Creswell, 2007) and originate from the philosophical view of Husserl or Heidegger (Dowling & Cooney, 2012). The purpose of phenomenological research is to take individual perceptions with regard to a specific phenomenon and attempt to develop a universal description of the phenomenon (van Manen, 1990). A researcher may examine a human experience such as cycling education participation by speaking with individuals who have experienced the phenomenon of interest and ultimately developing a “composite description of the essence of experience for all those individuals” (Creswell, 2007, p. 58).

The third established qualitative method that was drawn on in developing the research design was case study method. Case studies involve an examination of an issue by exploring one or more cases within a setting or context (a bounded system) (Creswell, 2007). Yin (2009) considered a case study to be “an empirical enquiry that investigates a contemporary phenomenon within its real-life context” (p. 13). Some suggest the term ‘case study’ is a description of a specific unit of analysis or choice as to the study’s focal point (Stake, 2000), which relates more to the sampling and selection of participants (Hammersley, 1992). More generally, the term ‘case study’ relates to an intensive study which focuses on a case where the purpose, at least in
part, is to better understand a larger class of cases or more specifically, a population (Gerring, 2007). While a range of definitions and conceptualisations exist, from these descriptions it seems that case study research involves in-depth investigation of one or more cases, for the purposes of drawing conclusions and reporting accordingly, with regard to that specific case, and/or a wider, related phenomenon.

Reflecting further on the more general approach to qualitative research proposed by Yin (2011), eight choices, decisions, or, considerations were outlined related to designing a qualitative study (see Table 3.1). Researchers are wise to consider whether developing a strict design from the outset will be beneficial. Validity is the second consideration. “A valid study is one that has properly collected and interpreted its data so that conclusions accurately reflect and represent the real world ... that was studied” (Yin, 2011, p. 78). A range of actions can be taken to improve the quality of qualitative research. Data collection units and sampling considerations are suggested to be linked in the context of research design. Studies may have more than one level of data collection units which can fall into nested arrangements (broader levels such as field settings, and embedded levels such as participants in such settings). Researchers make decisions regarding the structure of such arrangements and who will form the sample of the study. Purposeful sampling is a typical approach taken in qualitative research designs (Creswell, 2007; Eisenhardt, 1989; Miles & Huberman, 1994; Patton, 1990, 1999; Yin, 2003, 2009).

Table 3.1: Key Considerations in Designing Qualitative Research

<table>
<thead>
<tr>
<th>Choice</th>
<th>Details - whether or not to do the following</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Start the research design at the beginning of a study</td>
</tr>
<tr>
<td>2</td>
<td>Take steps to strengthen the validity of the study</td>
</tr>
<tr>
<td>3</td>
<td>Clarify the complexity of data collection units</td>
</tr>
<tr>
<td>4</td>
<td>Attend to sampling</td>
</tr>
<tr>
<td>5</td>
<td>Incorporate concepts and theories into your study</td>
</tr>
<tr>
<td>6</td>
<td>Plan to obtain participant feedback</td>
</tr>
<tr>
<td>7</td>
<td>Be concerned with generalising a study’s findings</td>
</tr>
<tr>
<td>8</td>
<td>Prepare a research protocol</td>
</tr>
</tbody>
</table>

Adapted from Yin (2011, pp. 75-104)
Researchers may also decide to what extent they would like to develop concepts and theories in their studies with inductive (letting data lead to emergence of concepts) and deductive (letting concepts or categories guide data collection and analysis) approaches discussed as two key options (Yin, 2011). While traditionally not considered to be a key attribute of qualitative research, Yin (2011) discussed issues of generalisability with respect to qualitative research design. The author noted that studies which have implications beyond the data collected can hold greater value. As such, researchers may wish to consider how this might be achieved without striving solely for representative results. The final decision for researchers relates to research protocols. “A protocol should connote a broad set of behaviours you are to undertake, rather than a tightly scripted interaction between you and ... a field participant” (Yin, 2011, p. 103). As such, rather than developing a structured research instrument, a qualitative researcher should consider what protocols may be relevant (if any) in the context of their research.

As has been outlined, to achieve the study aim of examining socio-ecological influences on Australian women’s cycling participation, in the context of cycling education, a constructivist-interpretive philosophical perspective is taken. Given the challenges associated with cycling education courses as a research context (discussed later in the chapter), yet the potential richness of data, a method of inquiry which allowed the researcher to gain as full an understanding of participant perspectives related to cycling within this context was desired. Depth and detail, rather than breath, were the focus, thus gaining a detailed understanding of phenomena and the meanings brought to them by individuals, in natural settings (Silverman & Marvasti, 2008).

No single established qualitative method (Creswell, 2007; Edwards & Skinner, 2009; Yin, 2011), in isolation, served the intended purpose of the study, particularly within the confines of the research context (cycling education). Data collection methods and principles related to phenomenology, ethnography and case study research were drawn upon; however, none of the specific variants was strictly followed. Yin (2011) and Stake (2010) discussed this to be a valid and appropriate approach to
 qualitative research. As such, the eight choices outlined by Yin (2011) were considered in the process of developing a research design, as set out in the following section.

### 3.4 RESEARCH DESIGN

The present section outlines research design considerations such as defining units of analysis, sampling and participant recruitment processes. The discussion begins by considering the research context selected for the study, which ultimately informed decisions related to units of analysis, and sampling.

#### 3.4.1 Cycling Education as the Research Context: AustCycle Program

In Chapter Two, cycling education was highlighted as an important element in attempts to encourage women’s cycling. Reasons for this included women’s self-reported lack of confidence and skill in handling bicycles, their positive regard for programs that focus on such areas and, the potential positive impact of such programs (Garrard et al., 2006; Telfer et al., 2006). In an Australian review of best practice in adult cycling proficiency training (Bicycle Federation of Australia, 2006), it was concluded that an integrated model of delivery regarding cycling education in Australia was required. This approach was thought to be the most appropriate way to ensure high quality service provision of cycling education and to provide a framework that could easily be adopted by cycling education trainers.

Given that cycling education was selected as an appropriate context for this research, a program that had a degree of consistency in delivering education across Australia was deemed a useful frame for the study sample. This study does not specifically seek generalisability, given the national consistency of accreditation through AustCycle, drawing the sample from this program would allow findings to potentially inform delivery nationally, where appropriate. As such, in the context of considerations discussed by Yin (2011), the study seeks to achieve a degree of analytic generalisation which is suggested to involve a researcher discussing how
study findings “might have implications for an improved understanding of particular concepts” (Yin, 2009, p. 100). Furthermore, the large potential reach of programs within a national framework further seemed to reinforce the value of using this program as the basis for sampling.

In line with the recommendations of the Bicycle Federation of Australia (2006), in 2008 a consistent cycling education accreditation program was developed as a partnership between Cycling Australia (Australian sporting body), the Amy Gillett Foundation (a non-profit foundation promoting cyclist safety) and the former Bicycle Federation of Australia (which ceased operating in 2010). Prior to this, a number of education providers operated in different capacities and displayed highly variable training approaches (Bicycle Federation of Australia, 2006). AustCycle uses a licensee model that offers structure, training and guidance to providers (education course operators). AustCycle education programs seek to provide participants with the tools they need to get involved in and enjoy cycling on a regular basis, with increased confidence and safety (AustCycle, 2013a). Furthermore, the program strives to use a model comparable to AUSTSWIM whereby a consistent structure of coaching delivery and training is provided, ensuring a high standard of education for all participants.

While the program originated in New South Wales in 2008, it has since been rolled out nationally with the assistance of funding from the Australian Government’s Healthy Communities Initiative. This was secured by AustCycle in July, 2010 and represents an A$1 million investment from the Department of Health and Ageing. Such funding seems to indicate a level of awareness of the need for increased focus on cycling education in Australia at federal government level. This is in addition to the linkages between physical activity promotion, health, and cycling, as indicated by the source of the funding. As a result of such funding, AustCycle emerged as the country’s first nationally standardised program offering cycling education (AustCycle, 2010b).
The licensee model employed by AustCycle allows individuals to become accredited as either a provider or teacher (see Table 3.2). AustCycle providers are generally small businesses or organisations (including local councils) who pay a licence fee to use the AustCycle brand in their program design, and marketing efforts. Providers come from a range of backgrounds and have varying degrees and forms of experience, although the AustCycle model of delivery ensures providers operate in line with specific guidelines. This involves abiding by a code of conduct, and thus minimises the risk of negative participant experiences. Despite these organisational controls, due to varying provider aims and experiences, participants rarely experience exactly the same course structure from one provider to the next.

### Table 3.2: AustCycle - Additional Information

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key AustCycle Roles</strong></td>
<td>Provider: A business or school which is licensed and insured to deliver training courses and employ teachers to deliver training.</td>
</tr>
<tr>
<td></td>
<td>Teacher: An individual who provides training to groups and individuals throughout Australia - Teachers work for AustCycle Providers.</td>
</tr>
<tr>
<td><strong>Current Providers</strong></td>
<td>Australian Cities: 28</td>
</tr>
<tr>
<td></td>
<td>Regional Australia: 19</td>
</tr>
<tr>
<td><strong>Teacher Accreditation</strong></td>
<td>1. Hold a first aid qualification.</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>2. Have a satisfactory working-with-children check.</td>
</tr>
<tr>
<td></td>
<td>3. Complete online Australian Sports Commission’s beginner coaching course.</td>
</tr>
<tr>
<td></td>
<td>5. Complete AustCycle skills coach training.</td>
</tr>
<tr>
<td></td>
<td>6. Complete Level 1, AustCycle teacher training course (2 days).</td>
</tr>
<tr>
<td><strong>Becoming a Provider</strong></td>
<td>• One-off registration fee (A$900).</td>
</tr>
<tr>
<td></td>
<td>• Monthly licence fee (A$99) for instructors, maintain insurance etc.</td>
</tr>
<tr>
<td></td>
<td>• Providers receive a provider pack on registration:</td>
</tr>
<tr>
<td></td>
<td>- Tips on how to market a business.</td>
</tr>
<tr>
<td></td>
<td>- Materials including session plans, flyers, posters, forms and templates.</td>
</tr>
</tbody>
</table>

(AustCycle, 2013b, 2013c; Cycling Australia, 2013b)
Providers create a range of program options to suit their target market, and also to suit individual needs. Teachers are also accredited through AustCycle, however, they operate under a recognised AustCycle provider. The AustCycle teacher accreditation program is housed in Cycling Australia’s coach development program and is also recognised under the Australian Sports Commission’s National Coaching Accreditation Scheme (NCAS) (AustCycle, 2010a). To become an AustCycle teacher one must complete the appropriate accreditation through AustCycle, including gaining extensive experience conducting cycling training and education programs, before becoming a licensed teacher.

From an organisational perspective, AustCycle strives to be the leading provider of cycling education in Australia, assisting those who want to ride bicycles for recreation and transport purposes (AustCycle, 2010a). Moreover, AustCycle strives to deliver high-quality cycling training, through the licensee model, to Australians of all ages and ability levels, encouraging and equipping participants to ride further, more often, more confidently, and more safely. The ultimate goals are to improve the health of Australians, provide a safer cycling environment, and also offer positive outcomes for the environment (AustCycle, 2010a).

Funding through the Healthy Communities Initiative provides support to local government areas (LGAs) in delivering programs to the community (AustCycle, 2013d). In the context of AustCycle, this means that LGAs can become providers or employ providers to deliver training using relevant funding. Given its wide potential reach, defined structure and support at a federal government level related to health outcomes, this program provides a logical fit with the requirements of the present study.

3.4.2 Sampling and Recruitment

Qualitative research usually involves small samples “nested within their context, and studied in depth” (Miles & Huberman, 1994, p. 25). Sampling relates not just to
the people selected, but also to the sites in which persons may be situated to examine the phenomenon of interest (Flick, 2007). The smallest unit of analysis considered in the present study was individual cycling education participants. A nested arrangement (Yin, 2011), where the provider served as a broad level data collection unit with individual participants embedded as a narrower unit, formed the data collection unit structure. Having identified AustCycle as the education context for the study, the next stage was to determine the specific settings or locations for data collection to take place. The present study needed to consider the best approach to addressing the research questions while being mindful of time and budgetary considerations.

As depth was sought, it was decided that participants would be recruited through one provider in Melbourne and one in Sydney. Observations provided by Pucher, Garrard, et al. (2010), in relation to the differences between cycling environments in Melbourne and Sydney (Australia’s two major cities), helped provide further context regarding these two locations. These similar yet different settings allowed the researcher to draw comparisons and contrast perspectives, adding additional analytic benefit (Yin, 2003, 2009). The roll-out of AustCycle nationally might have suggested that a representative sample from each state and provider would have offered the most comprehensive picture of the program. However, the research aims to gain an in-depth understanding of influences on women’s cycling participation in the context of education. As such, issues beyond the context (education) were the focus, and drawing participants from courses offered by a range of providers across a number of locations may have compromised the research intent and depth sought.

In response, a smaller scale, more in-depth approach to sampling was chosen, as is outlined further below. It will be explained later in the chapter that data were predominantly collected by observing education sessions and conducting multiple interviews with participants to explore immediate and lasting outcomes of education participation along with cycling perceptions. Therefore, it was necessary
to work with providers, to observe, recruit, and follow-up with participants, getting to know them along the way.

AustCycle management was contacted to grant permission to access providers and participants. Contact with providers was initiated by AustCycle management, after which time the majority of dealings regarding participant recruitment, occurred at the provider level. At the time the present study commenced, AustCycle, having originated in New South Wales and subsequently expanded nationally, had a large representation in New South Wales. In other states and major cities, few established providers were operating. The Melbourne provider selected was the only AustCycle provider operating in that city at the time data collection commenced (late in 2011). This provider offered education courses on a part-time basis in association with local councils across three council regions. The Sydney provider was recommended by AustCycle management, given the particular focus their programs placed on women’s participation, in line with purposeful sampling methods.

AustCycle provided the overview below (see Table 3.3) of education levels linked to their accreditation model AustCycle. Providers selected offered courses which generally corresponded with the levels indicated below, however, both providers also offered introductory level, one-on-one training for those learning to cycle for the first time. They also did not focus highly on advanced training sessions at the time data collection took place. Contact was made with individual providers by email and phone, and face-to-face meetings were arranged where the research intent, requirements and ethical considerations were discussed. From this point, providers generally supported the researcher by providing details related to education courses (time and location), forwarding research material to course participants to inform them of the study and invite them to participate and allow direct observation of sessions to occur.

The Melbourne provider selected offered courses across different parts of Melbourne. As such, participants were drawn from different regions. The Sydney
provider operated courses predominantly in the inner western suburbs of Sydney, resulting in study participants being drawn from this location. As such, the sample was made up of from residents of Melbourne’s northern and eastern suburbs, with a small proportion from other areas, and Sydney’s inner west (see Table 3.4). The sampling aim was to recruit a variety of participants across different course levels in each location. A total of 33 individuals were recruited for interviews across the four locations from various levels of education (education levels are considered further in results chapters).

Table 3.3: AustCycle Education Course Levels

<table>
<thead>
<tr>
<th>Level</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 0 (Introduction)</td>
<td>- Foundation skills.</td>
</tr>
<tr>
<td></td>
<td>- Traffic-free environments.</td>
</tr>
<tr>
<td></td>
<td>- Learn to manoeuvre the bike safely.</td>
</tr>
<tr>
<td></td>
<td>- Participants should leave the course able to safely start, stop, pedal and steer.</td>
</tr>
<tr>
<td>Level 1 (Beginner)</td>
<td>- Basic safety principles and bike handling in traffic-free environments.</td>
</tr>
<tr>
<td></td>
<td>- Build skills and confidence.</td>
</tr>
<tr>
<td></td>
<td>- May focus on road rules for cyclists, however, no on-road riding.</td>
</tr>
<tr>
<td>Level 2 (Intermediate)</td>
<td>- Road safety skills and awareness.</td>
</tr>
<tr>
<td></td>
<td>- Progressing to cycling in low to medium traffic environments.</td>
</tr>
<tr>
<td></td>
<td>- Participants should leave the course being able to demonstrate safe cycling skills in low-traffic environments.</td>
</tr>
<tr>
<td>Level 3 (Advanced)</td>
<td>- Advanced bike handling and traffic skills.</td>
</tr>
<tr>
<td></td>
<td>- Training on real roads in realistic conditions.</td>
</tr>
<tr>
<td></td>
<td>- Participants should leave the course being able cycle on busy roads and navigate complex intersections and road features.</td>
</tr>
</tbody>
</table>

Adapted from AustCycle (2013e)

Table 3.4: Interview Sample

<table>
<thead>
<tr>
<th>Participant Location</th>
<th>Number of Participants</th>
<th>Interviews*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melbourne - North</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td>Melbourne - East</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Melbourne - Other</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Sydney Inner - West</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
<td><strong>64</strong></td>
</tr>
</tbody>
</table>

* Two participants interviewed three times; four participants interviewed once only.
The majority of the sample was drawn from Melbourne, given this allowed for session observations to take place. While it might have been best if observations and in-course recruitment could have taken place in Sydney (for consistency and depth), attempts were made to do so and logistical issues associated with a series of last-minute changes to course times related to unseasonal weather in Sydney made planning for session observations difficult. As such, observations took place in Melbourne only. Given that courses in Sydney followed a similar structure to those offered in Melbourne, this difference presented as a limitation, but did not entirely compromise the study. Recruitment of participants in Melbourne involved observing sessions and asking attendees to participate in interviews. Recruitment in Sydney involved the provider sending information about the study to enrollees, inviting them to participate in interviews. Having explained the units of analysis and sampling and recruitment approaches employed, the following section will discuss methods of data collection.

3.5 METHODS OF DATA COLLECTION

Creswell (2013) discussed a concept termed the ‘data collection circle’ in which data collection is seen as a “series of interrelated activities aimed at gathering good information to answer emerging research questions” (p. 146). This process involves locating a site or individual, gaining access and building rapport, purposefully sampling, collecting data, resolving field issues and storing data. Having discussed sites and units of analysis, sampling and recruitment, this section will consider the processes used to collect, record and store data. The present study used three methods of data collection including interviews, observation and document analysis, to obtain data from different sources (from individual participants, providers and stakeholders). This combination of data collection methods was selected to allow for a rich variety of information to be collected, with perspectives compared and contrasted.
Prior to conducting observations and interviews, the researcher wanted to gain a thorough understanding of the AustCycle program and the contextual complexities associated with delivering cycling education in Australia. The researcher attended a two-day AustCycle accreditation course which provided an opportunity to speak with those training to become providers, be exposed to relevant content, and generally to engage with the concept of cycling education delivery and issues relevant to women. Following this, the researcher continued to meet providers and speak with staff employed by AustCycle and key stakeholder groups to better understand the program and its potential role in encouraging women’s participation. The researcher then observed two courses offered in Melbourne to gain a sense of how courses are operated and the general responses of participants, prior to developing interview questions or recruiting participants specifically. The final component of this contextual phase involved speaking with five women who were interested in cycling, and looking to increase their involvement in different forms of cycling, to better understand key influences on their participation and interest in cycling education. This helped in the process of refining the interview guide used by the researcher.

In Melbourne, participants were typically observed participating in different level courses (anywhere from one to four hours long, in school grounds, car parks and on quiet roads). Angrosino (2007) suggested that observational research methods require researchers to engage their senses and take note of a phenomenon in a field setting for the purpose of scientific research. Creswell (2013) discussed four types of observations, each distinguished by the degree to which the researcher engages with participants in a specific field setting (from complete participant to complete observer). In the present study, the researcher wanted to use observations as a means of establishing rapport with participants. As such, the researcher engaged with participants being observed (Angrosino, 2007; Creswell, 2013). Yin (2011) suggested that the focus of observations may vary depending on the research question at hand, however, may include:
• Characteristics of individual people (e.g., attire, gestures and non-verbal behaviour);
• Interactions among people;
• Actions taking place (human or mechanical); and
• Physical surroundings (including visual and audio cues).

Melbourne participants were informed that a researcher would be attending their education course to observe the session, and were asked to express any objections. Participants were supplied with relevant information and told that they would be invited to partake in a series of interviews following the course. The researcher observed sessions to better understand program components and participant experiences. Efforts were made to meet and get to know education participants in courses, speaking with women casually between activities where appropriate, making note of key comments, education processes, development, and/or attitudinal changes related to cycling. This provided an introductory context through which rapport could be developed with participants, allowing the researcher to gain a general understanding of their previous cycling journey and their response to education in this context. For sessions where participants left the closed environment (that is, cycled on roads), the researcher brought a bicycle to the session and observed from the back of the group. As such, reflective notes were often made, after sessions, which were used in the process of analysing data.

Following observation, education participants were invited to partake in interviews and contact details were collected for those interested. The observation schedule has been included in Table 3.5. Conducting observations allowed a better understanding of program characteristics, participant experiences, and development outcomes to be gained, while also contextualising participant responses from a number of angles. Observation and interactions that took place in education sessions allowed for rapport to be developed with participants, prior to interviews being conducted with participants in most cases (Sydney excluded). Creswell (2007, 2013) emphasised the importance of developing rapport with participants, to ensure quality data may be collected.
Table 3.5: Session Observations - Details

<table>
<thead>
<tr>
<th>Ob.</th>
<th>Time</th>
<th>Location</th>
<th>Location</th>
<th>Level</th>
<th>Duration</th>
<th>Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Morning</td>
<td>M-N</td>
<td>Primary School</td>
<td>1</td>
<td>2.5 hours</td>
<td>4 women</td>
</tr>
<tr>
<td>2</td>
<td>Morning</td>
<td>M-N</td>
<td>Primary school, local roads</td>
<td>2</td>
<td>4 hours</td>
<td>5 women</td>
</tr>
<tr>
<td>3</td>
<td>Morning</td>
<td>M-N</td>
<td>Primary School</td>
<td>1</td>
<td>2.5 hours</td>
<td>5 women</td>
</tr>
<tr>
<td>4</td>
<td>Morning</td>
<td>M-N</td>
<td>Primary school, local roads</td>
<td>2</td>
<td>4 hours</td>
<td>5 women</td>
</tr>
<tr>
<td>5</td>
<td>Morning</td>
<td>M-N</td>
<td>Car park</td>
<td>0</td>
<td>1 hour</td>
<td>1 woman</td>
</tr>
<tr>
<td>6</td>
<td>Morning</td>
<td>M-N</td>
<td>Car park</td>
<td>0</td>
<td>1 hour</td>
<td>1 woman</td>
</tr>
<tr>
<td>7</td>
<td>Morning</td>
<td>M-E</td>
<td>Car park</td>
<td>1</td>
<td>2.5 hours</td>
<td>5 women, 1 man</td>
</tr>
<tr>
<td>8</td>
<td>Afternoon</td>
<td>M-E</td>
<td>Car park</td>
<td>1</td>
<td>2.5 hours</td>
<td>5 women, 1 man</td>
</tr>
<tr>
<td>9</td>
<td>Morning</td>
<td>M-NE</td>
<td>Car park</td>
<td>1</td>
<td>2.5 hours</td>
<td>2 women 1 man</td>
</tr>
</tbody>
</table>

While observational research played an important role in data collection and participant recruitment, the main source of data collected in the present study was obtained through in-depth interviews. “The qualitative interview attempts to understand the world from the subjects’ point of view” (Kvale & Brinkmann, 2009, p. 1). Kvale (2007) discussed the seven stages of a qualitative interview-based inquiry. These involve thematising (‘why’ and ‘what’ questions), designing, interviewing, transcribing, analysing, verifying, reporting. As noted by Yin (2011), qualitative interviews involve less structure than positivist, quantitative interviews. In qualitative interviews, relationships between researchers and participants are fluid and not strictly scripted. Furthermore, qualitative researchers typically follow a conversational mode with a mental framework of questions guiding rather than structuring the interview (Yin, 2011). As such, a series of discussion points or questions was developed based on the research questions, conceptual framework, and contextual phase of the research. Despite this, questions acted only as a guide, with the researcher allowing the conversation with participants to flow. This resulted in similar issues being discussed, in different ways, with varying degrees of emphasis in each interview.

In line with the research questions, the researcher wanted to examine women’s cycling perceptions, education experiences and responses to training. As such, data collection needed to take place at multiple time points. An ideal situation might have been to interview women before and after education participation, and then...
at a follow-up time to gain a more full understanding of their cycling perceptions and the outcomes of education, using the socio-ecological constructs as a guide. This was the approach taken by Telfer et al. (2006) in evaluating a pilot cycling proficiency training program. However, the present study did not seek to evaluate the AustCycle program. As such, strict time restrictions and consistency were deemed less important than gaining a rich set of qualitative data.

Through discussions with providers, it was not deemed possible to interview participants pre-participation, given the short time period between enrolment and participation in many cases. An additional complexity was that in some cases (particularly in Sydney) the identity of participants remained unknown until the provider arrived (where bookings were managed through local councils). As such, the researcher made attempts to interview participants at least twice, while also observing their participation in sessions to gain a general understanding of their baseline cycling perceptions through discussions in education sessions. Figure 3.1 outlines the typical timing of data collection in Melbourne and Sydney. Variations between cities are demonstrated, largely a product of situational constraints.

Figure 3.1: Data Collection - Timing and Approach
The first interview with each participant took place in the days following education participation (up to two weeks in some cases, depending on participant availability and scheduling multiple interviews post education sessions). The initial interview lasted from 30 to 60 minutes. General issues related to participant background, previous cycling experience, cycling interests, current participation, influences on participation (using socio-ecological constructs as a frame), motivations for education enrolment, initial responses to education and changes in response to education were discussed. In addition to general background information related to demographics and living situations, Table 3.6 provides an overview of the interview guide used in the first interview to explore relevant issues with women regarding cycling participation and cycling education.

**Table 3.6 Interview Guide Outline**

<table>
<thead>
<tr>
<th>Section</th>
<th>Topic Area</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Experience with cycling - Previous, current and desired participation</td>
<td>RQ 1; RQ 3,4 - examine changes and potential action</td>
</tr>
<tr>
<td>2</td>
<td>Cycling participation motivations</td>
<td>RQ 1</td>
</tr>
<tr>
<td>3</td>
<td>Perception of different forms of cycling - Commuter, recreational, organised</td>
<td>RQ 1; RQ 3,4 - examine perceived changes</td>
</tr>
<tr>
<td>4</td>
<td>Perception of socio-ecological environment - Individual, social, physical, policy</td>
<td>RQ 1 RQ 3,4: examine perceived changes and potential action</td>
</tr>
<tr>
<td>5</td>
<td>Motivation for cycling education - Desired outcomes</td>
<td>RQ 2</td>
</tr>
<tr>
<td>6</td>
<td>Cycling education outcomes (perceived) - Behaviour, internal/external environment</td>
<td>RQ 3, 4</td>
</tr>
</tbody>
</table>

Participants were asked in initial interviews whether they would be willing to participate in a follow-up interview. All agreed to do so, and 10 weeks after their initial interview participants were contacted to make a follow-up time. Three months was selected as a desired follow-up period, in line with the evaluation protocol being used to assess the AustCycle program. In some cases, slow responses, lack of time available, or, other factors resulted in follow-up interviews being conducted anywhere from three to five months following the initial interview. Participants were invited to keep in touch with the researcher via email, if they
desired, between the initial and follow-up interviews. A few did so, providing updates on rides they had been on, expressing concerns regarding incidents, while the majority preferred to discuss issues predominantly in interviews.

Follow-up interviews sought to examine changes in participant attitudes, follow up on previous stated intentions, and generally establish what skills and information gained through education had been retained in the eyes of participants. Furthermore, lasting changes in attitude and behaviour were also examined. Participants were asked to reflect on the role of education in the context of their participation. Follow-up interviews took anywhere from 20 to 65 minutes. Particularly important to the second interview stage was looking for similarities and differences between interviews one and two. As such, comprehensive notes were made based on interview one, and reviewed prior to interview two being conducted, with individualised follow-up questions noted and examined based on content discussed in interview one. Participants were informed from the outset that their involvement in all requested interviews would result in them being placed in the draw to win a $300 bicycle store voucher to thank them for their time.

Telephone interviews, rather than face-to-face interviews, were conducted with participants at each contact point. Telephone interviews were selected as the method of data collection, given the complexities of data collection discussed, such as time restrictions, multiple contact points with participants and the broad geographic region from which the sample was drawn. Telephone interviews offer researchers a method that captures the flexibility of face-to-face interviews, while increasing the potential reach due to the removal of time and distance barriers (Gillham, 2000). Consistency in data collection technique is desired, and telephone interviews were viewed as the best way to achieve such consistency. In most cases, rapport had already been developed with participants during education sessions. However, in the case of participants recruited via email, the researcher was careful to spend time building such rapport with participants prior to examining research issues (Creswell, 2007, 2013).
Additional interviews were conducted with stakeholders including AustCycle management, providers and teachers; local council representatives (those involved in funding and facilitating the delivery of AustCycle through their local councils); and other cycling participation stakeholders (representatives from cycling sport bodies and bicycle user groups). This was undertaken to examine a range of perspectives on women’s cycling influences, and the potential role of education, also looking to a basic extent at organisational considerations related to women’s cycling participation. All education participants and most stakeholder interviews were recorded using a digital recording device. While issues associated with gaining permission from participants may limit the use of recording devices (Yin, 2011), an interview recording can provide an invaluable source of data, as it exists as a literal replica of an interview (Fetterman, 2009). In the present study, interview recordings were transcribed verbatim. The researcher compared recordings and transcripts for accuracy. Notes and memos were developed throughout all stages of data collection, particularly during and after session observations and interviews. The researcher initially listened to interview recordings and made additional notes regarding key themes, issues, education outcomes and areas for follow-up. This process allowed emerging themes to be noted and ultimately explored with different participants in subsequent interviews, and assisted the researcher to build an understanding of the key issues, as data collection took place.

The final source of data collected and analysed in the present study was documents such marketing material, website content, information provided to participants, course material and other relevant sources. These were obtained from AustCycle and individual providers to gain additional depth and context. Furthermore, this allowed a more detailed picture of participant cycling education experience to be established. Policy-related documents such as state and national cycling strategies were also used to gain insight into cycling environments in the two cities in which data collection took place. Yin (2003) explained that documents can be used to corroborate information gained from other sources and to provide clues that aid
inquiry. As such, documents played a supporting role in data collection and analysis with the richest data being collected through in-depth interviews and observations.

One key reason for using three methods of data collection related to triangulation as a qualitative research consideration. Stake (2010) explained that triangulation involves looking at the phenomenon multiple times, from multiple angles, drawing on multiple sources of information. Achieving triangulation may involve obtaining a range of perceptions to both clarify the meaning ascribed by people and verify the repeatability of specific observations or interpretations (Stake, 2005). Yin (2011) suggested that triangulation relates to seeking three ways to corroborate results reported in a study. Triangulation is a useful attribute of qualitative research as different methods reveal different aspects of empirical reality (Patton, 1999). Furthermore, “triangulation reflects an attempt to secure an in-depth understanding of the phenomenon in question” (Denzin & Lincoln, 2005, p. 5).

The present study used three data collection methods, including interviews with a range of participants and stakeholders. Observing and interviewing participants on more than one occasion exposed the researcher to participants in a capacity which allowed a more thorough appreciation of individuals and their potential biases. As such, actions were taken to look at the phenomenon multiple times, from multiple angles, drawing on multiple sources of information (Stake, 2010). Having outlined the approaches taken to collect data, the section that follows considers methods of data analysis employed in the present study.

3.6 DATA ANALYSIS

The research strategy and methods explained to this point resulted in a variety of data being collected including observational notes, interview transcripts, documents and memos written by the researcher throughout the data collection process. In establishing a strategy for data analysis, the work of Miles and Huberman (1994), Stake (2010), and Yin (2011) provided guidance. The general process of data analysis described by Miles and Huberman (1994) involves “three
concurrent flow activities: data reduction, data display and conclusion drawing/verification” (p. 10). Stake (2010) discussed the “taking apart and putting together” of data, as the foundation of analysis processes (p. 134). Finally, Yin (2011) outlined five phases of qualitative data analysis which were of particular relevance to the present study, given the generic qualitative approach taken (rather than adopting one specific method such as case study or ethnography). These phases have been outlined in Table 3.7. Yin (2011) specifically emphasised that data analysis commonly takes a non-linear, recursive, iterative approach, whereby analysis may move back and forth throughout these stages.

Table 3.7: Qualitative Data Analysis - A Framework

<table>
<thead>
<tr>
<th>#</th>
<th>Stage</th>
<th>Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Compiling</td>
<td>- Compiling the data into a formal database/ putting them in some order.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Careful methodical organisation of original data.</td>
</tr>
<tr>
<td>2</td>
<td>Disassembling</td>
<td>- Breaking the data down into some smaller fragments or pieces.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- May involve assigning labels or ‘codes’ to such fragments or pieces.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- May be repeated several times as codes are tested.</td>
</tr>
<tr>
<td>3</td>
<td>Reassembling</td>
<td>- Using substantive themes or codes to group disassembled pieces into categories.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- May be facilitated by graphically representing or tabulating higher order categories.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Benefits from researcher’s insightfulness in seeing emerging patterns.</td>
</tr>
<tr>
<td>4</td>
<td>Interpreting</td>
<td>- Using the reassembled materials to create a new narrative – this forms the key analytic outcomes of the study.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- This stage implies that results reported may be interpreted differently by another researcher.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Researcher may continually disassemble and reassemble the data until the researcher is satisfied with the interpretation.</td>
</tr>
<tr>
<td>5</td>
<td>Concluding</td>
<td>- Drawing conclusions from the entire study.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Should have a firm, if still preliminary version of your interpretation.</td>
</tr>
</tbody>
</table>

Adapted from Yin (2011, pp. 176-229)
Yin (2011) offered further advice with respect to striving for rigour in research. More specifically, the role of careful and methodical analysis was discussed in this regard. The following three precautions were advocated:

- Checking and rechecking the accuracy of data;
- Making analysis as thorough and complete as possible; and
- Continually acknowledging the unwanted biases imposed by your own values throughout data analysis (Yin, 2011, p. 177).

The author also alerted readers to the value of “making constant comparisons, being especially alert to negative instances, developing rival explanations, and continually posing questions about … data” (Yin, 2011, p. 177). Each of these considerations assisted the researcher in undertaking the complex task of analysing over 3,000 minutes of interview data, various documents, and countless memos and observational notes. In analysing data, NVivo software was used. Yin (2011) noted that computer assisted qualitative data analysis software (CAQDAS) may assist researchers in following the five stages of analysis. However, analytic thinking must still be undertaken by the researcher. Basic functions of NVivo software assisted in the process of storing and coding data. Data were reviewed (particularly field notes and transcripts), named, imported into NVivo and grouped in appropriate folders to provide a clear framework for analysis. This constituted the analysis phase termed ‘compiling’ (Yin, 2011).

In the present study, transcripts and field notes were first read for content and quality, while still in the field, to identify any potential adjustments required to techniques and approaches used. Miles and Huberman (1994) explained that the coding process involves meaningfully dissecting field notes, transcripts of interviews and other forms of data, while keeping intact relations between parts. Codes are tags or labels that are used to give meaning to specific ‘chunks’ of information. They can take the form of straightforward or complex categories and act as an efficient method of labelling and retrieving data (Miles & Huberman, 1994).
Strauss and Corbin (1998) discussed three stages of coding, including open, axial and selective. Open coding involves breaking apart the data and identifying blocks of data that relate to specific concepts (Corbin & Strauss, 2008). The researcher then attempts to define these concepts in terms of specific dimensions and properties. The axial coding process involves identifying relationships between categories and sub-categories and piecing the data back together in new and meaningful ways (Strauss & Corbin, 1998). Finally, selective coding is the process of selecting one core category, around which other categories are assembled (Strauss & Corbin, 1998). In many ways, these key coding concepts, related to grounded theory, can be likened to the phases of disassembling, reassembling and interpreting data, as discussed by Yin (2011).

The presence of existing literature and subsequent development of a conceptual framework, prior to data collection, meant early coding phases were informed by research, rather than emerging from the data alone. As such, a degree of deductive analysis took place. However, the exploratory nature of the research questions sought additional inductive analytical outcomes. Analysis, therefore, included deriving codes from the conceptual framework, research questions and data. According to Miles and Huberman (1994) “conceptual frameworks and research questions are the best defense against [data] overload” (p. 55).

At the disassembling stage (Yin, 2011), the researcher read transcripts and reviewed observational notes and research memos in search of emergent themes. Memos associated with each participant were read, prior to the coding of their respective transcript, with each document being coded, line by line, at this stage. Yin (2011) discussed level one and two codes, where level one codes were likened to open codes. Initial themes or codes developed were loosely framed within the context of socio-ecological dimensions, forms of cycling, and education-related information, in line with the conceptual framework and research questions. This was done in an effort to avoid “data overload” (Miles & Huberman, 1994, p. 56). The researcher was, however, mindful of the advice of Richards (1999), who suggested that “data reduction must be theory informed, and data driven” (p. 415). Therefore, theory
provided a basis for code development, but did not restrict the emergence of new codes beyond those related to the key research questions and literature.

Coding took place while in the field and upon completion of data collection (Miles & Huberman, 1994). In line with the recommendations of Yin (2011), data were coded several times (two full rounds of coding) until saturation was deemed to have been reached. One advantage of engaging in aspects of coding while simultaneously collecting data was that it enabled the researcher to determine the point at which no new or novel information was being derived from new interview participants. Thus, the point at which no further participant recruitment was required.

The researcher then looked for ways in which different codes could be linked together, combined, or associated in some manner. These codes were suggested to be categorical codes or level-two codes (Yin, 2011). Throughout this phase the author made additional notes and memos related to thoughts, hunches and avenues considered; with respect to data given such insights can prove to be invaluable at the interpretation phase. Following this process, the researcher worked toward reassembling data by looking for broader patterns in the data. This phase involved “bringing level one and two codes onto an even higher conceptual plane, whereby themes or even theoretical concepts start to emerge and may be considered level three and level four codes” (Yin, 2011, p. 191). At this point, the researcher begins to play with the data, arranging them differently and considering alternative scenarios and explanations, until the researcher is satisfied (Yin, 2011).

On the advice of Miles and Huberman (1994), matrices were used at this stage to compare responses across different groups. Microsoft OneNote and Excel were used to develop detailed comparative matrices with key headings based on the conceptual framework, interview guide and emerging themes. Such headings are outlined in Table 3.8. Microsoft Excel was used to also develop a more condensed matrix that enabled the researcher to examine participants’ home location, demographic information, and level of cycling education, with a range of factors such as reported barriers, influential people, participation patterns and preferences,
and major changes through education, amongst other things. While the present study did not follow a specific case study design, these approaches allowed a form of cross-case analysis to take place where the researcher examined specific themes and responses provided by individuals, in the context of their backgrounds, situations and education groups (Miles & Huberman, 1994). Data from similar groups (e.g., beginners) from each location were examined to identify similarities and differences in responses.

**Table 3.8: Topics/Themes Considered**

<table>
<thead>
<tr>
<th>Informed by Research Questions</th>
<th>Emergent Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Childhood cycling</td>
<td>- Getting back into cycling</td>
</tr>
<tr>
<td>- Current cycling</td>
<td>- Cars, infrastructure, driver culture</td>
</tr>
<tr>
<td>- Desired cycling</td>
<td>- Bike access and equipment</td>
</tr>
<tr>
<td>- Participation at follow-up</td>
<td>- General cycling issues</td>
</tr>
<tr>
<td>- Cycling education</td>
<td></td>
</tr>
</tbody>
</table>

Through developing a coding structure, coding the data, reviewing and reordering codes, and comparing individuals and groups using matrices, a series of broader themes emerged, and the researcher was able to begin to interpret and make further sense of codes and data. It was then deemed appropriate to move to the next phase (interpreting), however, it was noted that the researcher could return to previous phases if and when appropriate (Yin, 2011). Interpreting involved looking for relationships between codes and concepts related to each participant and their respective groups (home location, education level etc.). Memos and a research journal were kept throughout the data collection and analysis phases. These memos were essentially the researcher’s notes to self, regarding ideas related to relationships between concepts and codes. They were kept in an effort to help tie specific pieces of information and concepts together to indicate connections between pieces of information and wider concepts (Miles & Huberman, 1994). As such, memos aided the researcher to make sense of the data, and ultimately come to more informed, coherent conclusions.
Interpreting involved the researcher giving meaning to the data. Yin (2011) discussed three modes of interpreting including description, description and call to action, and explanation. The author suggested that “the ideal interpretation will connect the ideas of interest, reflected ... by the relevant literature, with your reassembled data” (p. 219). Miles and Huberman (1994) discussed 13 tactics that may be useful in drawing meaning from data while attempting to avoid biases and strive for quality in findings presented. Many of these were reflected upon throughout the reassembling, interpreting and conclusion drawing phases. However, as noted by Stake (2010), “there are few recipes for analysis and synthesis. They are intuitive processes, but forms can help” (p. 156).

In interpreting the data, the description and call to action approach described by Yin (2011) was deemed appropriate, given the nature of the research questions. In examining the coding structures, specific codes, memos and matrices, the author used the research questions as a guide to link specific codes and aspects of data to theory and generate meaning. The researcher generated conceptual diagrams to assist in the process of understanding influences, relationships, processes, and changes. Descriptive narrative was sought while also searching for opportunities for action and change based on themes that emerged, education participant responses, stakeholder responses, policy documents and the literature considered. What opportunities existed for issues and influences discussed by women to be targeted in the context of theoretical knowledge?

The final phase discussed by Yin (2011) involves drawing conclusions from interpretation. “A conclusion is some kind of overarching statement or series of statements that raises the findings of a study to a broader conceptual level or broader set of ideas” (Yin, 2011, pp. 220-221). At this point a researcher may make inferences about the whole study, with conclusions possibly being related to lessons learned and practical or theoretical implications. Common forms of conclusions relate to calls for new research; challenging conventional generalisations and social stereotypes; new concepts, theories, and/or discoveries about human social behaviour; making substantive propositions; and/or, generalising to a broader set of
conditions (Yin, 2011). At this stage, the researchers sought to consider the interpretations presented in broader practical and theoretical contexts. This provided opportunities to think about how the research findings could inform efforts to encourage women’s cycling participation. Moreover, how findings could provide support for a conceptual agenda related to encouraging collaboration in the context of sport development and physical activity promotion, as discussed in Chapter Two and by Rowe et al. (2013). The final section of this chapter outlines issues related to ethics, quality and credibility.

### 3.7 ISSUES OF ETHICS, QUALITY AND CREDIBILITY

The present study required access to AustCycle providers, participants and documentation. As such, the researcher gained organisational consent from AustCycle management and worked closely with and providers to ensure that the confidentiality of participants and providers was respected. The research was subject to formal ethics approval, in accordance with Deakin University protocols (BL-EC 43-11). University requirements stipulate that informed consent must be obtained from each research participant. As such, a Plain Language Statement (PLS) was provided to interview participants, outlining the purpose of the research and requirements of those who choose to participate. Participants were asked to provide verbal consent to participate in the research, in accordance with the PLS, at the commencement of the first interview. Privacy and anonymity were respected by not identifying individual participants or providers in this thesis or associated publications. Participants were also given the right to withdraw from participation at any stage.

Providers and key administrators from AustCycle were provided with copies of relevant sections (those particularly pertaining to matters related to AustCycle) of research reports and articles prior to submission. These recipients were offered the opportunity to flag points with which they were not comfortable for further discussion with the researcher. These measures were put in place to respect participants involved, while also allowing for the integrity of the research to be
maintained. Beyond these considerations, ethical issues were minimal in this study, given that participants were over the age of 18, and no sensitive material was covered in observations, interviews, or documentation obtained.

While ethics was a key consideration, so was research quality. Earlier in the chapter, in outlining key considerations in designing qualitative research (Yin, 2011), one such consideration pertained to whether or not the researcher chooses to take steps to increase the validity of the research. The author outlined seven considerations related to validity, however, questioned the fit of this term in qualitative research. Within positivist paradigms, traditional evaluation criteria such as internal and external validity, reliability and objectivity, adequately served in evaluating the quality of research. Denzin and Lincoln (2005) warn that such criteria cannot effectively be used to evaluate qualitative research, given the differing purposes and standpoints of qualitative research undertaken within interpretivist paradigms.

While debate continues regarding the best way to evaluate qualitative research, it has been suggested that credibility, transferability, dependability and confirmability should be the aim of qualitative research (Devers, 1999). Denzin and Lincoln (2005) discuss trustworthiness and authenticity as relevant concepts in contrast to positivist research measures. While terminology varies, the principles appear similar. Credibility may be achieved using triangulation, searching for refuting evidence within cases, and using member-checking strategies (asking participants to verify findings) strategies to ensure results accurately represent respondent perceptions (Devers, 1999). With respect to transferability, there is an expectation that the research provides clear details regarding the contextual boundaries of their research in explaining implications (Devers, 1999).

In this study, triangulation was achieved by gathering data using three methods (observation, interview, and document analysis), with responses obtained from several sources including education participants (different locations and skill levels), providers and other stakeholders. Findings were discussed with reference only to
the Australian context, given the variety of socio-ecological factors that can impact cycling behaviour internationally (Pucher, Dill, et al., 2010) and the varying conditions in other parts of the world. While potential implications for other contexts are discussed in later chapters, the researcher sought to draw conclusions predominantly related to Melbourne and Sydney, to shed light on the wider phenomenon, rather than presenting findings that were representative of other contexts. Furthermore, a national cycling education program (AustCycle) was selected to further increase the capacity for such implications to be considered.

Dependability and conformability in qualitative research suggest that researchers should focus on using accurate, appropriately collected data, use peer review processes to provide an external check of the research, search for negative cases, and use a critical eye to review the research (Devers, 1999). The researcher engaged in a peer-review process by publishing and presenting at conferences progressively throughout the research process. This provided an opportunity to receive feedback from peers to refine the research method, conceptual elements, and even data analysis approaches through presenting preliminary findings. In the process of collecting and analysing data, efforts were made to identify atypical responses by individuals or groups, to determine whether there were situations in which study findings were less representative.

Guba and Lincoln (2005), warn against developing rigid criteria for evaluating qualitative research, although Tracy (2010) discussed the value of having clear, yet flexible, markers of quality. These ‘soft criteria’ (see Table 3.9), developed specifically for qualitative inquiry, can provide a valuable addition to the qualitative research domain. In pursuit of quality in the present study, the researcher selected a topic perceived to be of value to society in its timeliness (increasing trend toward emphasis on encouraging cycling participation across Australia) and the potential impact of developing a better understanding of women’s cycling participation in the context of potential health and wellbeing outcomes. A range of data sources was used, with participants tracked over a period of months, to ensure that key issues related to change were captured through observations and interviews. The criteria
listed below in addition to considerations discussed by Yin (2011) were reflected on in establishing the research design and throughout stages of data analysis.

Table 3.9: Eight “Big Tent” Criteria for Excellent Qualitative Research

<table>
<thead>
<tr>
<th>Criteria for Quality</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worthy topic</td>
<td>Topic that is worthy, timely, significant, interesting.</td>
</tr>
<tr>
<td>Rich rigor</td>
<td>Theoretical constructs, data and time in the field, sample (s), context(s), data collection and analysis processes.</td>
</tr>
<tr>
<td>Sincerity</td>
<td>Self-reflexivity of researcher values and potential biases; transparency in methods and challenges.</td>
</tr>
<tr>
<td>Credibility</td>
<td>Thick description; triangulation or crystallisation; multivocality; member reflections.</td>
</tr>
<tr>
<td>Resonance</td>
<td>The research uses aesthetic, evocative representations, naturalistic generalisations, and/or transferable findings, to influence or move readers.</td>
</tr>
<tr>
<td>Significant contribution</td>
<td>Through advances conceptually/theoretically, practically, morally, methodologically, or heuristically.</td>
</tr>
<tr>
<td>Ethical</td>
<td>Procedural ethics, situational and culture specific ethics, relational ethics, exiting ethics.</td>
</tr>
<tr>
<td>Meaningful coherence</td>
<td>Methods and procedures fit stated goals, interconnect literature, research questions, findings and interpretations with each other, and achieve stated objectives.</td>
</tr>
</tbody>
</table>

Adapted from Tracy (2010, p. 840)

3.8 SUMMARY

Chapter Three outlined the research questions and discussed methodological considerations related to the study. The philosophical underpinnings of the research were first discussed where the relevance of a constructivist-interpretive paradigm was noted. As such, a relativist ontology, a subjective epistemology and naturalist methodology (Denzin & Lincoln, 2000, 2005) were highlighted as key aspects of the research. From this point, qualitative research methods were outlined as relevant to the study. In line with the contention of Yin (2011) the researcher took a general qualitative research approach (rather than following one specific established method), developing a research design that suited the nature of the research problem and the context selected.
The AustCycle program provided a sampling frame with participants being drawn from courses offered by one provider in Melbourne and one in Sydney. Observation, interviews with education participants and relevant stakeholders, and document analysis were used to collect qualitative data that was analysed with the assistance of NVivo software. Specific details and related rationale were offered throughout the chapter, with respect to the use of such procedures and approaches. Having outlined the methods employed, the following chapters provide insights regarding the researcher’s interpretation of the qualitative data collected. The final chapter focuses on conclusions, study limitations and issues related to conceptual advancement.
CHAPTER 4: CONTEXT - PROVIDERS, PARTICIPANTS

AND CYCLING BEHAVIOUR

Chapter Four is the first of three chapters which present study findings and discussion in context of existing literature. Table 1.1 (see Chapter One) summarises results and discussion chapter structure. Chapter Four provides details related to the research context, including participant characteristics and individual cycling education provider information. The level and type of reported and desired cycling are examined, reflecting on participant responses. Chapter Five presents findings with respect to RQ1 (participation influences), while Chapter Six examines cycling education-related issues and actions required to support women’s participation in Australia (RQ2, RQ3 and RQ4). Conclusions and strategic recommendations are presented in the final chapter of the thesis.

Cycling education programs provide the setting or context for the study. Participants were adult women enrolled in cycling education courses organised by two specific AustCycle providers (one in Melbourne, one in Sydney). In total, 33 women were recruited, with the majority being interviewed twice (once directly post education, once three to five months later). Details regarding basic participant characteristics have been included as Appendix VI. Further to this, Table 4.1 is provided to summarise important characteristics such as age and participant location.

Table 4.1: Participant Details

<table>
<thead>
<tr>
<th>Age</th>
<th>Melb.</th>
<th>Syd.</th>
<th>Home Location</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29</td>
<td>1</td>
<td>1</td>
<td>Melb. North</td>
<td>12</td>
</tr>
<tr>
<td>30-44</td>
<td>7</td>
<td>3</td>
<td>Melb. East</td>
<td>11</td>
</tr>
<tr>
<td>45-59</td>
<td>12</td>
<td>3</td>
<td>Melb. Other</td>
<td>3</td>
</tr>
<tr>
<td>60+</td>
<td>6</td>
<td>0</td>
<td>Syd. Inner West</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>7</td>
<td>Total</td>
<td>33</td>
</tr>
</tbody>
</table>
The majority of participants were from two regions of Melbourne (northern and eastern suburbs) with three from other parts of Melbourne and seven from Sydney’s inner western suburbs. Nearly half of all participants were aged 40-59 while only two were in the age group 18-29, which generally represented the distribution in sessions observed. Most participants had learned to cycle in childhood. It was interesting to note that while women were the target participant group, recruitment was made easier by the fact that almost all education enrolees in programs observed and delivered by AustCycle trainers were female. This is consistent with observations made by Telfer et al. (2006), where more women than men enrolled in a pilot cycling proficiency course offered.

4.1 MELBOURNE AND SYDNEY PROVIDERS

The Melbourne provider who assisted with participant recruitment worked on cycling-education-based activities on a part-time basis, alongside other work commitments. This provider employed additional teachers who taught education courses that study participants attended. The Melbourne provider worked with local councils, workplaces and the general public providing cycling education and training initiatives. Community education sessions (groups of 4 to 6 participants) were typically offered a few times per month, across a number of council regions in Melbourne. Generally, the council would fund courses and subsidise participant fees in part or full, depending on the circumstances. The Healthy Communities Initiative funding, discussed in Chapter Three, could be made available through local councils. However, this was not the only way courses were funded. Courses were run on council land including primary schools, council car parks and parklands and were often linked with community centres. Participants were generally required to bring their own bike to courses.

Three levels of courses were offered by the Melbourne provider (as discussed in Chapter Three). The first was an introductory or learn-to-ride course where participants learned to ride a bicycle for the first time. This was one-on-one training with one provider or instructor, and took place over three, one-hour sessions. The
second level of training was a basic skills training course. This was operated in a controlled environment and aimed to develop participant skills related to handling the bike and negotiating simulated traffic environments (such as merging with traffic, signalling, etc.). The third level of training involved on-road skills courses where participants would commence training in a controlled environment and progress onto the road. This was a half-day course, where participants were able to practice on roads the skills gained in the off-road environment. The Melbourne provider had a strong focus on recreational and commuter-oriented cycling participation, and did not engage in any form of sport-related cycle training. An emphasis was placed on learning to ride safely and finding ways to use a bicycle for transport where possible.

Melbourne participants came from a range of geographic locations, age groups, family situations, work situations and backgrounds. Most had ridden a bike previously, although for a few, cycling education courses provided an opportunity for one of their first experiences on a bicycle. The geographic variety in the Melbourne sample provided an extra level of depth to the data. Given that it was identified in Chapter Two that physical environments can significantly influence participation, it was important to recruit participants from more than one region of Melbourne, as each participant would likely encounter different built and social environmental conditions in their riding experiences.

The Sydney provider selected was recommended by the AustCycle general manager as a suitable choice, given the focus they placed on women’s participation. The courses offered by the Sydney provider in which study participants engaged were also closely linked to local councils, and followed a very similar progression or structure to those offered in Melbourne. These were in line with AustCycle recommendations (see Chapter Three). The Sydney-based business operated both cycling education training and cycle coaching with an emphasis on development at all levels. While commuter cycling was encouraged, the provider had a background in competitive cycling, so also offered competitive cycling training options. While relevant in the context of women’s cycling, given the emphasis of the present study
on cycling education (rather than sport coaching) recruitment did not take place through such programs.

Building on details provided in Chapter Three, Table 4.2 provides a summary of components of specific levels of education, as observed or discussed with providers. An indication of the number of study participants who completed each level has been included. It should be noted that in some situations, participants went through more than one level of training (for example, basic skills and on-road training were often offered in a progressive package-style format). As such, the number of participants classified in each category in Table 4.2 is more than the total number of actual participants (N=33). Having established the basic settings in which data were collected, the focus now shifts to examining cycling participation behaviour and interests reported by study participants. This provides details to support the discussion that follows regarding participation influences.

Table 4.2: Courses Offered by Providers

<table>
<thead>
<tr>
<th>Level</th>
<th>Format</th>
<th>Details</th>
<th>Participants</th>
</tr>
</thead>
</table>
| 0 Introductory/Learn-to-Ride| Series of one-on-one lessons| - Absolute beginners  
- Balancing on bike  
- Basic skills: mounting, dismounting, braking  
- Straight-line riding and turning corners  
- Controlled environment | Mel N=26  
Syd N=7  
Total N=33 | 3  
1  
4  |
| 1 Basic Skills             | Single group session        | - Long break from riding, low skill level or confidence  
- Bike safety check, basic mechanics of bike  
- Mount, dismount, brake and basic handling  
- One-hand riding, head checks, merging, emergency braking  
- Controlled environment | 19  
4  
23  |
| 2 On-Road Training         | Single group session        | - Seeking confidence in traffic - can ride but needs to build skills and confidence  
- As above in addition to:  
  - Riding in low-medium traffic, signalling, hook turn, roundabouts, road placement, hill climbing, basic gearing  
  - Low-medium traffic environments | 9  
3  
12  |
4.2 PARTICIPATION IN CYCLING: DESIRED AND REPORTED PARTICIPATION

Participants were asked to discuss the recent level and type of cycling participation in which they had engaged (reported participation), and also consider their future participation interests (desired participation). Categories were established to classify the type and frequency of cycling participation. Table 4.3 below outlines the classification system used with respect to the type of cycling. Concepts from the theoretical framework were used in classifying cycling types, while forms of cycling within such categories were largely drawn from participant responses. It should be noted that while discrete categories are shown here, they have been placed on a continuum to indicate that classifying cycling forms implies a degree of overlap between categories. For example, community cycling events are organised and perhaps have links to competitive sport progression in some contexts. However, they are also closely aligned with recreational cycling and potentially contribute to community development objectives, including activity levels and social engagement.

Table 4.3: Types of Cycling Participation

<table>
<thead>
<tr>
<th>Organised Forms of Cycling</th>
<th>Recreation (self-organised)</th>
<th>Commuting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive</td>
<td>Non-competitive</td>
<td></td>
</tr>
<tr>
<td>• Club Cycling</td>
<td>• Community events</td>
<td>• Riding in leisure time for the experience, rather than to reach a destination</td>
</tr>
<tr>
<td>• Racing events/competitions</td>
<td>• Touring events and holidays</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Social groups</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• BUGs</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sport Development “of”</th>
<th>Community Development “through”</th>
</tr>
</thead>
<tbody>
<tr>
<td>(More organised/formal)</td>
<td>(Less organised/formal)</td>
</tr>
</tbody>
</table>

When considering frequency of participation, a method of classification was established to gauge the general frequency with which women participated, or wished to participate, in different forms of cycling. It was therefore not designed to be used to assess total time spent participating. The purpose of this study was to examine women’s participation and the potential role of education in encouraging
women to cycle. As such, a general indication of participation frequency was deemed appropriate for this element of the research. The categories established included:

- **Regular participation:** One or more times per week
- **Occasional participation:** Fewer than once per week
- **No participation:** Do not engage in that form of cycling

Table 4.4 summarises participant responses with respect to participation in different forms of cycling. In examining reported and desired types and levels of cycling participation, it should be noted that responses from participants who engaged in one interview only (no follow-up), have been separated from other responses (and placed in brackets). This is for comparative purposes in Chapter Six, where responses provided in follow-up interviews are compared with these responses, to identify changes in cycling interest and reported participation. While all participants were invited to take part in follow-up interviews, four participants either did not respond to such invitations or indicated they were no longer available to participate.

**Table 4.4: Desired and Reported Participation – Interview One**

<table>
<thead>
<tr>
<th></th>
<th>Regular 1 or more times p/w</th>
<th>Occasional less than once p/w</th>
<th>None no participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>No. of Participants</td>
<td>No. of Participants</td>
<td>No. of Participants</td>
</tr>
<tr>
<td>Commuter</td>
<td>Desired 17(2)</td>
<td>3</td>
<td>9(2)</td>
</tr>
<tr>
<td></td>
<td>Reported 5</td>
<td>3(1)</td>
<td>21(3)</td>
</tr>
<tr>
<td>Recreational</td>
<td>Desired 12(3)</td>
<td>16(1)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Reported 1</td>
<td>15(2)</td>
<td>13(2)</td>
</tr>
<tr>
<td>Organised:</td>
<td>Desired 3</td>
<td>15(4)</td>
<td>11</td>
</tr>
<tr>
<td>Non-Competitive</td>
<td>Reported 0</td>
<td>2</td>
<td>27(4)</td>
</tr>
<tr>
<td>Organised:</td>
<td>Desired 0</td>
<td>0</td>
<td>29(4)</td>
</tr>
<tr>
<td>Competitive</td>
<td>Reported 0</td>
<td>0</td>
<td>29(4)</td>
</tr>
</tbody>
</table>

Note: Table relates to the desired and reported, level and type of cycling participation prior to education (as reported by participants).
*Numbers in brackets indicate responses for those participants who engaged in one interview only (no follow-up).
When examining desired and reported levels of participation, Table 4.4 shows that few participants cycled regularly prior to enrolling in cycling education. Five women reported regularly commuting by bicycle, while 19 suggested they would like to do so. This can be compared with recreational cycling where over half of the participants (N=18) were engaging in recreational cycling in some capacity prior to education, only one participant indicating that she regularly cycled for recreation (with most participants cycling recreationally less than once per week). A strong degree of interest appeared to exist with respect to commuter, recreational and organised (non-competitive) forms of cycling, where reported levels of participation were well below desired. Commuter cycling appeared to be an activity in which women wished to participate frequently, while organised (non-competitive) cycling could be engaged in occasionally with the majority suggesting that less than once per week was a desirable frequency. Recreational cycling participation was somewhere in between where most participants wanted to increase their frequency of participation, some to an occasional level and others to at least once per week.

Responses with respect to organised participation indicated that a great deal of interest exists for women to engage in organised (non-competitive) forms of cycling (22), although most had not participated in any forms of organised cycling prior to cycling education (31). In contrast, almost no interest in competitive cycling was shown, with a range of negative perceptions and barriers discussed by participants. These will be considered in Chapter Five. Five women had been commuting regularly by bicycle (one or more times per week) prior to education, and one was cycling for recreation every week. However, generally, skill and confidence barriers related to dealing with complex, dynamic cycling environments had deterred women from participating in the manner in which they desired. As such, nine participants reported engaging in some form of commuter cycling prior to education, while twenty-two participants were interested in commuting by bicycle.
4.3 SUMMARY

Chapter Four provided specific details with respect to AustCycle Providers, Teachers, and sessions offered, to further add context to findings. Responses related to participants’ desired and reported cycling behaviour were examined to allow further reflection throughout the remaining chapters. The general level and nature of women’s participation prior to enrolling in education and their cycling participation desires now being established, Chapter Five considers influences on different forms of cycling participation.
CHAPTER 5: INFLUENCES ON WOMEN'S CYCLING PARTICIPATION

The present study examines socio-ecological influences on participation, particularly across different forms of cycling, with a focus on a group of adult, female, inexperienced cyclists, of varying levels of skill. Chapter Five discusses results related to the first research question:

RQ 1: What factors influence women’s participation in different forms of cycling?

Three key areas of influence have been considered as follows:

1. Motivations: Why women wanted to participate in specific forms of cycling (perceived/desired benefits)
2. Supports/enablers: factors that supported women’s participation in specific forms of cycling
3. Barriers/constraints: reasons women did not participate in specific forms of cycling (limiting factors).

These core themes were used to frame results as, during the early phase of data analysis, these three codes emerged as core categories around which socio-ecological dimensions could be assembled. Such concepts were also drawn from theory and were utilised effectively by Garrard et al. (2006), the Cycling Promotion Fund and Heart Foundation (2013), and Daley et al. (2007) in their explorations of women’s cycling participation and participation amongst both males and females. Furthermore, barriers, motivations and constraints have frequently been used to frame qualitative research examining sport and physical activity participation (Allender, Cowburn, & Foster, 2006).

Motivations are considered separately from other individual influences in the present study, in line with the approach taken by Garrard et al. (2006), and given the significance of this individual factor in understanding participation. Motivation
has been defined and described widely by authors across different research domains. Generally speaking, the concept relates to the question of ‘why’ with respect to behaviour (Deci & Ryan, 1985). Within the context of sport and exercise psychology, motivation has been referred to as the direction and intensity of one’s effort (Sage, 1977). Similarly, leisure motivation research focuses on understanding “psychological and sociological reasons for participating in leisure activities” (Chen & Pang, 2012, p. 1075) and leisure motivation can be defined as a need, reason, or satisfaction that stimulates involvement in a leisure activity (Crandall, 1980). In the present study, motivations also relate to the desired benefits women sought through participation, given the overlap that exists between such concepts (benefits as drivers of motivation and interest).

Sallis and Owen (1999) explained that the term ‘barrier’ refers to the reasons people do not engage in specific forms of physically active behaviour. Barriers may represent either objective or subjective reality, with researchers often examining self-reported participant barriers. When considering cycling-related studies mentioned earlier in the present section, the terms ‘support’ or ‘facilitator’ have been used to describe factors that positively impact behaviour. Factors that support and/or constrain participation are considered together in the present chapter as positive and negative influences. Influences that support some people may constrain others, depending on the situation (e.g., the presence or absence of a social support network).

Study participants were asked to explain why they wanted to engage in specific forms of cycling (motivations), what factors positively influenced their participation in specific forms of cycling (supports/enablers), and what constrained or prevented them from cycling as they desired (barriers/constraints). Table 5.2 provides a collective summary of participation influences across different forms of cycling. Within the context of the study’s conceptual framework, cycling forms have been plotted along a continuum from sport development-related participation outcomes; through to community development-related participation outcomes (see Chapter Two). Results are broken down to highlight those influences which were common to
all forms of cycling and those which related to specific forms of cycling. Furthermore, factors of influence are classified according to their respective socio-ecological dimension. Table 5.1 provides a summary of the classification codes used. Motivations, as somewhat distinct from other influence categories, are summarised in a separate table for the purposes of clarity (see Table 5.3).

Table 5.1: Socio-Ecological Factors - Key to Classification

<table>
<thead>
<tr>
<th>Socio-Ecological Factor</th>
<th>Code Assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual factors</td>
<td>I</td>
</tr>
<tr>
<td>Social factors</td>
<td>S</td>
</tr>
<tr>
<td>Physical environmental influences</td>
<td>PE</td>
</tr>
<tr>
<td>Policy and regulatory environmental factors</td>
<td>PR</td>
</tr>
</tbody>
</table>
Table 5.2: Influences on Participation

<table>
<thead>
<tr>
<th>Organised (events, clubs, groups, cycling holidays)</th>
<th>Recreation (self-organised)</th>
<th>Commuting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive</td>
<td>Non-competitive</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sport Development “of”</th>
<th>Community Development “through”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common to all formats</td>
<td></td>
</tr>
<tr>
<td>I Confidence/ self-efficacy</td>
<td>I Motivation</td>
</tr>
<tr>
<td>I Skill</td>
<td>PE Weather</td>
</tr>
<tr>
<td>I Cycling Knowledge</td>
<td>PE Terrain</td>
</tr>
<tr>
<td>I Bike maintenance/ mechanical knowledge</td>
<td>S Social support/mentor(s)</td>
</tr>
<tr>
<td>I Fitness</td>
<td>PE/S Faster riders (PE/S)</td>
</tr>
<tr>
<td>I Bike access</td>
<td>PE Traffic/cars and related infrastructure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specific to this format</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I Knowledge of options</td>
<td></td>
</tr>
<tr>
<td>I/S Male intimidation</td>
<td></td>
</tr>
<tr>
<td>I Commitment</td>
<td></td>
</tr>
<tr>
<td>I Cost</td>
<td></td>
</tr>
<tr>
<td>I Time</td>
<td></td>
</tr>
<tr>
<td>I Fear of going fast</td>
<td></td>
</tr>
<tr>
<td>I Not competitive by nature</td>
<td></td>
</tr>
<tr>
<td>PR Availability of suitable options (location/ level/ times/ age)</td>
<td></td>
</tr>
<tr>
<td>S People to ride with (similar level)</td>
<td></td>
</tr>
<tr>
<td>I Bike transportation</td>
<td></td>
</tr>
<tr>
<td>PE Access to paths</td>
<td></td>
</tr>
<tr>
<td>I Time</td>
<td></td>
</tr>
<tr>
<td>I PE/S PE/I</td>
<td></td>
</tr>
<tr>
<td>PE/I Safe/appealing route options</td>
<td></td>
</tr>
<tr>
<td>I Appearance on bike</td>
<td></td>
</tr>
<tr>
<td>I Equipment required</td>
<td></td>
</tr>
<tr>
<td>I Carrying things</td>
<td></td>
</tr>
<tr>
<td>I Social norms</td>
<td></td>
</tr>
<tr>
<td>I Transport options</td>
<td></td>
</tr>
<tr>
<td>PE Bike security</td>
<td></td>
</tr>
<tr>
<td>PE End-of-trip facilities</td>
<td></td>
</tr>
<tr>
<td>PE Environmental awareness</td>
<td></td>
</tr>
<tr>
<td>PE Night/darkness</td>
<td></td>
</tr>
<tr>
<td>S Driving culture</td>
<td></td>
</tr>
<tr>
<td>PR Pavement riding laws</td>
<td></td>
</tr>
<tr>
<td>PR Traffic speed limits</td>
<td></td>
</tr>
</tbody>
</table>

Note: Number of participants = 33
Table 5.3: Motivations for Cycling Participation

| Common to all formats | Competitive | Non-competitive |  |  |
|-----------------------|-------------|-----------------|  |  |
|                       | Organised (events, clubs, groups, cycling holidays) | Recreational (self-organised) | Commuting |  |
|                       | Exercise and Health: |  |  |  |
|                       | - Fitness |  |  |  |
|                       | - Weight management |  |  |  |
|                       | - Physical health benefits |  |  |  |
|                       | - Mental health benefits |  |  |  |
|                       | Enjoyment and Empowerment: |  |  |  |
|                       | - Connecting with local community |  |  |  |
|                       | - Experiencing nature |  |  |  |
|                       | - Sense of freedom |  |  |  |
|                       | - Sense of achievement |  |  |  |
|                       | - Being admired |  |  |  |
|                       | Little/ no motivation |  |  |  |
|                       | - Guided experience |  |  |  |
|                       | - Find new routes |  |  |  |
|                       | - Realistic challenge |  |  |  |
|                       | - Routine/ commitment |  |  |  |
|                       | - Social opportunities |  |  |  |
|                       | - Managed risks/ support |  |  |  |
|                       | - Social opportunities |  |  |  |
|                       | - See new things |  |  |  |
|                       | - Integrate activity with holidays |  |  |  |
|                       | - Cheap and positive family/group activity |  |  |  |
|                       | - Financial incentives |  |  |  |
|                       | - Time and convenience: |  |  |  |
|                       | - More appealing than PT (crowded, slow, unreliable). |  |  |  |
|                       | - More convenient than driving (parking predominantly). |  |  |  |
|                       | - Time-effective exercise |  |  |  |
|                       | - Environmental awareness |  |  |  |

Note: Number of participants = 33
5.1 GENERAL CYCLING PARTICIPATION INFLUENCES: COMMON TO DIFFERENT FORMS

Several influences discussed by participants seemed common to all forms of cycling, while others were specifically related to one or two cycling formats, as anticipated (Daley et al., 2007; Garrard et al., 2012). The present section examines influences common to all forms of cycling (cycling generally). Motivations and desired benefits are first discussed (expanding on Table 5.3) with supports and constraints subsequently considered (expanding on Table 5.2). In the remaining sections, influences on different forms of cycling are examined in a similar manner (recreational, commuter and organised cycling).

5.1.1 Motivations

General participation motivations, common to all forms of cycling, appear to be related to two key concepts. The first is termed ‘exercise and health’, and the second, ‘enjoyment and empowerment’. Exercise and health represents a series of health benefits that women discussed as sources of motivation derived from active participation. Enjoyment and empowerment speaks to motivations associated with connecting with local communities, experiencing nature, feeling a sense of freedom while riding and improving proficiency in executing a skill perceived to be complicated. While these two themes relate strongly to all forms of cycling, the specific underlying facilitators or components of such desired outcomes or motivators varied between cycling forms in some cases. These complexities are addressed in the following discussion.

Exercise and Health

Seeking opportunities to participate in physical activity and exercise were the most commonly reported motivations for all forms of cycling. Riding a bike for any purpose was perceived to be a healthy activity which could contribute to health-related goals discussed by participants. This is consistent with previous research
which identified ‘health and fitness’ as a product of exercise involvement as key motivators or reasons why women reported participating in cycling (Cycling Promotion Fund & Heart Foundation, 2013; Daley et al., 2007; Garrard et al., 2006). Furthermore, Henderson and Gibson (2013) discussed “the influence and importance of physical and mental health as dimensions of leisure” in their review of women’s leisure research (p. 123). This suggests that women’s engagement in active leisure (beyond cycling specifically) is often motivated by a desire to experience such health- and activity-related outcomes. In the present study, women discussed exercise-related goals or interests such as building muscle strength, improving cardiovascular fitness, reducing disease risk, aiding weight management and improving mental health. Exercise as a means through which physical and mental health benefits could be received are key motivators for women.

While ‘health’ is a term which has been defined and conceptualised differently, a widely accepted definition of health was provided by the World Health Organisation (1948): “Health is a state of complete physical, mental and social well-being, and not merely the absence of disease” (p. 100). Nieman (2011) discussed three dimensions of health, commonly referred to in the literature. Such dimensions included physical health (absence of physical disease and having the energy to perform daily tasks including moderate to vigorous intensity activity); mental health (absence of mental disorders and the ability to negotiate daily challenges and social interactions in life without major issues); and social health (ability to interact with other people in the social environment and engage in satisfying personal relationships). Such dimensions of health were evident in participant responses with respect to cycling motivations.

Participants often spoke of more than one health benefit collectively as participation motivations. The following comment made by Amy, highlights this: “I definitely need to lose weight and I need to exercise. I have a family history of cardiac disease. I’m purely in it for ... fitness levels ... and airing my head out”. Participants over the age of 50 particularly emphasised muscle strength as a
physical health benefit sought from cycling participation. For example, Miranda explained that she wasn’t typically an active person, however, she wanted to find an activity to develop her leg muscles in response to muscle atrophy occurring as a consequence of aging. “You get to the stage where you lose muscle mass. At 50 plus ... I want to get back into it. To do some exercise that’s enjoyable and build up a bit of muscle, that’s the key motivator”.

Injury rehabilitation is another form of motivation women reported in relation to improving muscle strength (a component of physical health) through engaging in exercise. This was typically in regards to knee injuries, surgeries or related complaints. Mindy (who had recently undergone knee surgery), in particular, spoke of potential rehabilitation benefits linking these to her cycling motivations. “Cycling is the only thing that builds up that muscle that supports the knee so cycling is something that I should be doing just to help ... to maintain the knee in a good health state” (Mindy). Peta commented similarly:

**Bike riding ... has assisted with building up the muscles around my knees. I’ve had quite chronic knee problems for probably about 10 years and since I’ve started riding the bike consistently, the knees have been a lot better in terms of actually going up and down stairs. It’s not hurting [now] ... [and] I used to live with pain every day ... So that’s why I have multiple levels of motivation to keep it up. (Peta)**

Women also discussed cardiovascular fitness gains they sought through participation in cycling. For example, Peta spoke of how she timed her ride to work in an effort to monitor her fitness, push herself to cycle faster and track improvements. Kate’s comments were representative of thoughts expressed by a number of other participants regarding fitness. “I was thinking I should try and go at least for a short ride after work two or three times a week just to try and get up my fitness”. While many suggested improving fitness was a motivator, very few wanted to cycle particularly quickly and most suggested that local terrain would offer sufficient opportunities for desired fitness gains. It should be noted that while fitness, as an outcome of exercise and a component of physical health, was a
motivator, participants also discussed fitness as a key barrier to participation. This will be considered later in the chapter.

Participants also discussed exercise and health motivations related to potential disease prevention and weight management outcomes. While only a few specifically mentioned ‘weight loss’ or ‘weight management’, for many it was implied that through participating in cycling they would become healthier and lower their risk of lifestyle diseases. One mechanism through which this might be achieved was through weight management. Colleen directly discussed weight loss as a motivator, suggesting that a desire to lose weight for an event provided her with cycling motivation. “We’re having a 50-year school reunion and I thought I’d better lose some weight … I thought maybe if I could get back riding on the bike … that might be a way of getting fit again”. When interviewed three months post cycling education participation, Peta spoke of the weight she had lost since commencing regular commuter and occasional recreational cycling: “I’ve dropped about five kilos and have basically lost a lot of the fat around the waist … that’s also another motivating factor. Now I’m probably down to where I was when I was in my 20s”. Further to this, she discussed how other women from her workplace had started considering riding to work having seen her weight loss outcomes.

In addition to physical health benefits such as muscle strength and cardiovascular fitness, mental health was also reported as a driver for some women, related to the exercise aspect of cycling. In previous research, relaxation and stress-reduction was noted as a key source of cycling motivation (Cycling Promotion Fund & Heart Foundation, 2013; Garrard et al., 2006). While few participants spoke directly about seeking to reduce stress through cycling, they related enjoyment, being outdoors and getting out of the house to a sense of calm, something they desired from cycling. For one participant, mental health was the dominant motivation for cycling participation. Karen, who was particularly focused on using cycling as a form of transport, emphasised that, for her, cycling helped her to manage symptoms of depression. She spoke of her previous struggles with mental illness and her
motivation to commence and continue cycling, to help her to avoid taking medication:

Basically for 10 years I suffered from clinical depression ... and for me exercise obviously was going to be a big benefit and last year my main focus was getting off all medication ... I wasn’t able to get the fitness happening no matter what I tried. But starting at [a new job] and this colleague basically giving me no excuses by putting a bike in front of me and saying what’s your problem here? I thought, right, step up to the plate so that has really helped me. (Karen)

While health and fitness have been identified as significant cycling motivators in previous research (Cycling Promotion Fund & Heart Foundation, 2013; Daley et al., 2007; Garrard, 2003), the present findings suggest that benefits may be derived in relation to different dimensions of health. Through applying in-depth, qualitative data analysis techniques, the present study was able to tease out the specific aspects of ‘health and fitness’ that were of particular importance to women in this sample, building further on existing knowledge. Attention is now turned to the second major motivational concept, enjoyment and empowerment.

**Enjoyment and Empowerment**

Enjoyment and feeling a sense of empowerment or achievement emerged as key reasons women participated in different forms of cycling, with related positive reinforcement also being received by participants. While related to mental health in many respects, these sources of motivation are discussed in their own right, given that the end goal for women is not always specifically linked to mental health. In a recent survey, the Cycling Promotion Fund and Heart Foundation (2013) found that 76 per cent of women agreed with the statement “cycling is enjoyable”, with fun and enjoyment being ‘very’ or ‘quite’ important as a cycling benefit to 60 per cent of participants (third most important benefit behind health and fitness and getting fresh air) (p. 12). Fun and fresh air were also amongst the top four reasons women reported commencing or continuing to cycle in a study conducted by Garrard et al. (2006).
The concept of empowerment through cycling appears less well understood in the literature, however, in the qualitative portion of a study examining women’s cycling participation, Garrard et al. (2006) found that having the opportunity to learn new skills, and being an active role model and feeling a sense of independence and pride were important motivators with respect to women commencing or continuing to cycle. In addition, the concept of gendered cycling identity, where participants felt strong and competent through involvement in a cycling event, was discussed by Fullagar and Pavlidis (2012). Finally, Daley et al. (2007) also suggested women found participating in community cycling events to be an empowering experience through developing confidence in a more controlled environment.

Interestingly, women were divided regarding their overall perceptions of physical activity. Some generally enjoyed being active and were self-admitted exercise-addicts or ‘gym-junkies’, while others saw exercise as arduous and unpleasant. What was unanimous amongst the women interviewed was that they wanted to participate in cycling because it was an enjoyable activity. Enjoyment was derived from many different aspects of participation including being outdoors, exploring and seeing new things, feeling the wind rush through their hair, socialising on the bike or feeling energised through riding, amongst others. The term “sensory engagement” was used by Fullagar and Pavlidis (2012, p. 157) to describe a similar concept discussed by women who participated in a cycle touring event in Queensland. That was, the stimulation of a range of senses while cycling to different destinations. Women appeared to enjoy the pace, feeling and experience of cycling, over and above other forms of activity or leisure, with ‘engaging in life’ seeming to be a key driver. Maxine’s comments spoke to the heart of this concept: “There is something lovely about moving through the world at that speed and you get a lot closer to it than … in a car but it’s still a different speed than walking … It’s quite a joyful feeling”. Marie further reinforced such motivations through her reflections:

I love cycling … [You] can get around much faster than if you’re walking or running but you can take in your environment easier than if you’re driving so you can cruise along streets with pretty houses and stare at every single one of them or you can speed up
and get to where you want to be and you can take it all in. I like the sensation of coasting down hills. I like the feeling I’m getting my fitness when I charge up hills. I like seeing what top speeds I can get on my bike computer. I just really enjoy it; I get a rush out of it. (Marie)

These two comments were representative of statements made by women from different parts of Melbourne and Sydney, across different age groups. At the heart of it, women seemed to want to feel ‘more alive’ in different ways, and cycling provided such opportunities. Garrard et al. (2012) noted that one reason proposed to explain gender disparities in cycling participation was that women just “don’t like cycling” (p. 281). The authors noted that little evidence existed to support such claims, however, further evidence was required to adequately refute this contention. Consistent with other cycling participation studies (Cycling Promotion Fund & Heart Foundation, 2013; Garrard et al., 2006), the present study finds that women very much enjoy cycling. It will be discussed later in the chapter that while women appear to inherently enjoy cycling, a range of factors related to the built environment (e.g., cars and traffic), natural environment (e.g., weather and hills) and individual factors (e.g., confidence and fitness level), detracts from women’s enjoyment of the activity.

Further building on the concept of enjoyment and empowerment, Andrea was motivated to cycle by the joy she felt in relation to engaging with nature: “For me, it’s more to let the wind blow in my hair a bit and enjoy the sky instead of sitting in a car”. Similarly, Colleen explained that it was a nice feeling “riding along and feeling the wind in your face and in the fresh air”. These sentiments were echoed by other participants who worked behind desks or indoors and longed to engage with nature before or after work or on the weekends. Common phrases used by women related to the enjoyable sensation, feeling the wind in their hair or the sun on their faces, being able to see the sky and trees, exploring the environment and taking in the scenery. This is similar to findings which suggested that getting out in the fresh air was an important motivator for women to cycle (Cycling Promotion Fund & Heart Foundation, 2013; Garrard et al., 2006). Experiencing nature also relates to the
concept of sensory engagement discussed by Fullagar and Pavlidis (2012). Nice weather was typically considered more appealing for cycling participation, where engaging with nature and feelings of enjoyment were facilitated by good cycling conditions. Weather will be discussed in more depth later in this chapter in the context of barriers and supports of participation.

Feeling a sense of freedom through having the ability to explore new places, see new things and take in the world from a different angle was an often reported source of enjoyment and empowerment for women, across different forms of cycling. When asked why she cycled, Jacinta quite adamantly stated that “it’s actually the feeling of freedom, moving around like that, that’s the main thing”. Penny recounted that for her, cycling slowed life down to a more manageable pace, allowing her to fully engage and experience the world: “I feel you see more and feel more ... when you’re on the bike. You notice the houses, the people and the dogs and everything around the place”. Other participants described their sources of enjoyment as being related to fond childhood memories. Rhonda’s comments provide an example: “I’ve always liked bike riding. It takes me back to my teenage years and the freedom that I had. I used to ride everywhere and I just love ... being out especially in nice weather” (Rhonda).

In reflecting on concepts related to empowerment and achievement through education, several women made comments indicating that feeling empowered and good about themselves provided positive reinforcement for them to want to cycle more. Miranda spoke of how happy she was with herself after she rode her bike to get to the education course: “I was quite proud of myself that I rode there”. Lisa also spoke about her cycling participation suggesting she felt a sense of achievement and pride: “I feel a bit chuffed really that I’m giving it a go and enjoying it”. Mindy spoke of seeing cycling as a means of taking back control of her life, health and fitness after years of being constrained by work and life demands: “Women my age [53] get to a point and you look at yourself and you’ve lost control somewhere and I see it as a mechanism of taking back control”. Other women, particularly those who had become confident and generally proficient cyclists in a
commuter capacity, spoke of how they liked being considered as knowledgeable by friends, family members or colleagues, with respect to cycling. Acting as a role model has also been found to be a motivator for women in previous research (Garrard et al., 2006). This was particularly the case for Peta, Karen and Marie, for whom cycling was thought of as a badge of honour which allowed them to act as role models. Marie’s comments highlight this form of empowerment and pride:

I’ve become this sporty person lately ... I went for a ride with my friend ... He and his partner ... were saying you should probably drive over to our place and then we’ll ride ... I thought no, I can handle that. And so I rode over there from my place and it turned into a 30k ride which was fine ... but I really like the admiration I guess they had for me for doing that, of doing that challenge. (Marie)

Malhotra and Schuler (2005) discussed women’s empowerment in the context of international development. The authors suggested that the concept relates to the “enhancement of women’s ability to make strategic life choices” (p. 84). Women’s empowerment through leisure participation has been considered from a leisure management perspectives (e.g., Henderson, 1996; Henderson & Gibson, 2013; and, Shaw, 2001). Leisure has been suggested to be empowering through resisting traditional norms, largely with respect to participating in “gender atypical leisure behaviours” (Henderson & Gibson, 2013, p. 121). As discussed in Chapter Two and will be discussed further later in the chapter, cycling in Australia whether as a form of transportation, active leisure or recreation, or a sport has been suggested to be largely dominated by males. As such, empowerment through participation appears to relate strongly to leisure research observations.

Several participants appeared to perceive a range of forms of societal oppression as limiting their cycling enjoyment and options, related to faster, intimidating male cyclists, and the dominance of cars on roads, amongst other cycling barriers. Women saw that if they were able to overcome barriers and participate in cycling, they would experience a sense of achievement and empowerment, and engage more fully in their society. This was also reflected in findings reported by Fullagar and Pavlidis (2012) where women took pride in engaging in a cycling events and
breaking social norms surrounding gender stereotypes and the masculinity associated with cycling. In the aforementioned study, one participant commented “I feel very powerful on the bike; I feel very good on the bike” (p. 159). This comment is also representative of feelings expressed by a number of participants in the present study, where women were able to conquer fears and cycle. Many women had perceived cycling as a daunting prospect for many years prior to participating in cycling education. It was through facing a range of cycling-related fears and barriers (facilitated by education participation) that women sought and valued the sense of achievement that came with being able to ride a bicycle more confidently and safely.

5.1.2 Supports and Constraints

Having considered general cycling motivations, supports and constraints of participation are now discussed. Participants discussed a number of dominant influences with respect to all forms of cycling, however some factors influenced specific forms of participation in different ways. For example, cycling near or with faster riders was reported as a barrier to all forms of cycling participation. However, in the case of recreational cycling, faster and fitter riders were often friends and family members, while in the context of commuting, faster riders were more often people (generally males) who overtook and/or intimidated participants while they cycled to work or other destinations.

One particularly dominant influence reported by all women in some way, which strongly interacted with a range of other socio-ecological factors, was confidence. Women spoke of their lack of confidence as having the most significant influence on their participation. Lack of confidence has been discussed as a key influence on women’s participation in the literature (Cycling Promotion Fund & Heart Foundation, 2013; Daley et al., 2007; Emond et al., 2009; Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012). However, types of confidence have varied between studies, with confidence related to cycling on the roads, basic bicycle maintenance and riding ability all being considered in the context of cycling. The present study
seeks to unpack specific sources of reported low levels of confidence, to understand reasons behind such feelings.

As the term ‘confidence’ was used by women to describe a lack of self-belief in cycling ability, this term will be used in the results and discussion chapters to refer to this influence. However, the association between perceived self-confidence and self-efficacy is clear, and warrants discussion from a theoretical perspective. The term ‘self-efficacy’ is most commonly considered as being related to Bandura’s Social Cognitive Theory (Bandura, 1986), yet it is also a component of other models including the Transtheoretical Model (Prochaska & Di Clemente, 1986; Prochaska & DiClemente, 1982; Prochaska & Marcus, 1994) and an individual factor considered in socio-ecological models (Stokols, 1996). In the context of physical activity research, it describes “a person's confidence in his or her ability to do specific physical activities in specific circumstances” (Sallis & Owen, 1999, p. 117).

Self-efficacy is considered a strong predictor of physical activity participation across a range of domains (Ashford, Edmunds, & French, 2010; McAuley & Blissmer, 2000; Sallis & Owen, 1999). This is a result of mounting evidence regarding the predictive value of self-efficacy in relation to physical activity participation amongst healthy adults (Kaewthummanukul & Brown, 2006; Rovniak, Anderson, Winett, & Stephens, 2002; Sharma & Sargent, 2005), including both adoption and maintenance of activity (Sallis et al., 1986; Sallis, Hovell, & Hofstetter, 1992; Strachan, Woodgate, Brawley, & Tse, 2005). It was therefore not surprising to find that women frequently discussed self-confidence (or, theoretically speaking, self-efficacy) as a major influence on their participation in all forms of cycling. Moreover, low levels of cycling participation reported by participants prior to their engagement in cycling education courses appeared to be largely a product of participants’ lack of confidence or self-efficacy. Self-efficacy has been shown to be particularly influential early in the process of adopting a new physically active behaviour (McAuley & Blissmer, 2000; Sallis & Owen, 1999). Therefore, such findings were not unexpected.
Four sources of information are suggested to influence or determine a person’s self-efficacy (Bandura, 1977a, 1997), largely derived from principles of social cognitive theory (Bandura, 1986). These include enactive mastery experience or performance accomplishments, vicarious experiences, verbal persuasion, and physiological states (Bandura, 1977a). Enactive mastery experience or performance accomplishments relate to the positive impact of successfully performing the target behaviour and negative impact of failure to perform the behaviour. Vicarious experiences speaks to the self-efficacy building outcomes associated with witnessing ‘similar others’ successfully performing the behaviour. This is suggested to build self-efficacy of an individual through their appraisal of their own performance against the performance of that similar other person.

Verbal persuasion involves others expressing faith in the individual’s capabilities to perform the behaviour, as a means of building self-efficacy. The final source of self-efficacy information relates to physiological states and the positive impact of reducing negative states and/or correcting misinterpretations of bodily states (Bandura, 1977a). Self-efficacy has been discussed as both a determinant and consequence of physical activity participation (McAuley & Blissmer, 2000). Women’s negative previous cycling experiences (injuries, intimidation from faster riders, etc.) were considered to be sources of low levels of self-efficacy. The role of education, as an opportunity to build cycling-related self-efficacy is explored in Chapter Six.

Most participants suggested that a lack of confidence restricted their participation in cycling, and often stemmed from a range of other influences. In some cases, women who had not ridden a bike as an adult spoke of their apprehension regarding managing more complex bicycles than those upon which they had learned to ride as children, with hand-brakes and gears presenting particular problems (lack of performance accomplishments). In a study in Sydney, Daley et al. (2007) found study participants discussed a lack of confidence in operating complex bicycle technology was a barrier to participation (particularly among non-cyclists). For other study participants, it was a lack of confidence when cycling on roads with cars
(even quiet back streets) that stalled their progress. Women also spoke of how their lack of confidence was often rooted in their insecurities regarding their fitness and ability to negotiate hills or feeling pressured by faster riders (as mentioned previously). Fitness and a lack of confidence using new bicycle technology were also found to be important in the exploration of women’s participation influences undertaken by Garrard et al. (2006).

Women generally felt they lacked the skills necessary to be safe cyclists. This was not unexpected, given they were all enrolled in cycling education courses. Participants often reported low levels of skill with respect to things such as changing gears, performing head-checks, balancing on the bike, and manoeuvring safely in dynamic environments. Similar findings were reported by Garrard et al. (2006) where “many women did not know how to use gears, fix punctures, adjust seat height, or adjust helmets correctly” (p. 22). Carla told of her experiences related to using gears, which were similar to the experiences of over half of the women interviewed: “I’m still getting used to the gears because when we went up a hill I got in the wrong gear and I had to stop and get off”. Colleen discussed her lack of confidence in applying her skills in complex environments: “It was a Sunday morning and there were just people everywhere. I had to weave my way in and out of people so that was pretty challenging”. These sentiments were shared across different cycling environments including paths and roads, and were largely related to a fear of falling off or injuring themselves or others (safety concerns), as caused by their low levels of skill and confidence. Sarah’s comments highlight this feeling:

[If I am] coming up behind a walker and there’s a cyclist coming the other way then I have to really slow down and I found that difficult, to really slow down and just ride the bike slowly. So I would come to a dead stop so I’ve fallen off it two or three times ... I wanted to know how to do those things without falling off.

(Sarah)

Many participants experienced positive skill-related outcomes from education, which will be discussed in Chapter Six. However, skill level and confidence were inextricably linked, and where a lack of skill was perceived, a lack of confidence
followed. This appears congruent with the premise that failure to perform tasks successfully negatively impacts self-efficacy (Bandura, 1977a). Women’s self-perceived lack of skills influenced their participation in all forms of cycling, as basic bike handling skills were considered fundamental to all forms of participation. Interestingly, skills required for commuter cycling were perceived to be more complex than those required for recreational participation (as detailed later).

The relationship between skill level and safety concerns was mirrored in relation to traffic and road environments. Women reported the need to interact with cars and traffic, as a consequence of a lack of infrastructure to provide separation, as being a major constraint regarding all forms of participation. Even women who wanted to ride recreationally on bicycle paths often needed to negotiate traffic, using roads to access paths or to get to a relevant train station to access their desired route. Such environments were often perceived to present a high degree of risk for women.

Cars were seen as an unappealing variable, and several women reported that they more enjoyed cycling in countries such as Germany, Cambodia, Japan, and other quieter cities in Australia such as Alice Springs and Canberra. This perception seemed to exist because cycling in major cities such as Melbourne and Sydney required interaction with cars that were fast moving, impatient and unpredictable. Similar findings were presented by Daley et al. (2007) where occasional and non-riders often perceived there to be nowhere to go to ride safely. Apprehension regarding safety (risk aversion) and the need to interact with cars and traffic along with a desire for separation from such traffic are consistent with previous research (Cycling Promotion Fund & Heart Foundation, 2013; Dill & Gliebe, 2008; Emond et al., 2009; Garrard et al., 2006; Garrard et al., 2012; Garrard et al., 2008).

Participants often spoke of knowing people who had been knocked off their bikes by cars, with injuries ensuing, or being warned by others to watch out for car doors. Lisa, along with others, had witnessed cyclist injuries while using new road infrastructure in Melbourne or elsewhere: “The other thing that’s turned me off a little bit, I’ve noticed a few people get knocked [off]”. While Maxine’s apprehension
related more experiences of other cyclists: “I’m worried about the cars and the
doors opening... even people I know who have been ... very good and dedicated
cyclists still end up going through horrific bike accidents ... because drivers are so
poor here”. In relation to the concept of self-efficacy, it seemed women thought
that if experienced, confident cyclists could have accidents, they did not stand a
chance. Debbie’s comments highlight the interaction between a perceived lack of
skill and inadequate separation from cars: “I don’t know whether ... I could also be
thinking about watching out for car doors at the same time as the other things”.
This participant had experienced several falls on paths and in quiet environments
away from cars, which resulted in injuries. As such, she lacked confidence to take
her bike near traffic.

Holiday destinations, by the beach or overseas, were often suggested to be
attractive places to cycle, where the traffic was not as much of an issue. Participants
explained that they could ride on quieter roads without feeling as uncomfortable, or
that they had better access to off-road paths. Closely linked to the concept of cars
and traffic as barriers to participation was road infrastructure and having access to
low traffic routes. This was an important influence on participation for all women
across different forms of cycling. If adequate separation from cars was available,
facilitated by relevant infrastructure and supportive regulations, women felt more
comfortable, willing and able to cycle for a range of purposes (i.e., to commute or to
reach off-road cycle paths for recreational or organised group riding).

Such findings support a commonly held contention in the literature, that supportive
infrastructure and separation from traffic is crucial to encouraging more women to
cycle (Bauman et al., 2008; Daley et al., 2007; Dill, 2009; Dill & Carr, 2003; Garrard,
2003; Garrard et al., 2006; Garrard et al., 2012; Garrard et al., 2008; Krizek et al.,
2005). However, even when infrastructure such as bike lanes were available, some
women felt that drivers did not respect cyclists and/or that laws permitted cars to
encroach on spaces intended for cyclists, as noted by Lisa as a problem with respect
to her cycling experience: “You notice that a lot of cars go on the bike lane and that
sort of thing where it merges you notice that often a car will go into that lane”.
While cars, traffic and road infrastructure influence all forms of cycling participation, there are differences in the ways such barriers were discussed. People interested in commuter cycling found it particularly difficult to overcome poor infrastructure. However, in the case of recreational cycling, women often could find a way around interacting with traffic if they were motivated to do so and had appropriate equipment (such as a car with a towbar and bicycle rack). These considerations are discussed further in the context of recreational cycling later in the chapter. The influence of road infrastructure was also evident by comparing perceptions of women from inner suburbs (Melbourne’s city and northern regions) which offered more advanced cycling infrastructure (Pucher, Garrard, et al., 2010) with those of participants living in Melbourne’s less central eastern suburbs. Women in these eastern suburbs lived near large arterial roads, and cycling on the road was not an option they perceived to be attractive or realistic. They generally felt they had a reasonable network of cycling paths, but the roads in these areas were not seen as attractive for cyclists. Such factors will be examined in further depth when influences on commuter cycling are presented later in the chapter.

In Melbourne’s eastern suburbs in particular, women discussed fitness and terrain as often interrelated factors that influenced their participation in cycling. Hilly terrain was a deterrent for most women across all locations, however the eastern suburbs of Melbourne were perceived to be particularly hilly. Martine, in her 70s, spoke of being trapped at the bottom of large hills, with her only way to cycle being to transport her bicycle by car to a flatter area:

> I can’t cycle up my drive ... I’m at the very bottom of two hills ... I’m sure if I could just get on my bike and ride up to the shops ... that would be fine, but I can’t. They’re so steep that you can’t even push the bike up. (Martine)

Debbie spoke of how she planned routes based on terrain, largely as a product of her perceived lack of fitness and confidence managing hills on her bicycle: “I look for a flat route at this point because I don’t feel like I’ve got the fitness to factor in hills even though I could get off and walk up them”. Similarly Caitlyn spoke of how hills influenced her cycling experiences, particularly related to her lack of
confidence (self-efficacy) with respect to fitness and handling the bike. “If I was on a bike path and there was a hill, I would just walk the bike up ... I’d be scared of going up the hill. I’d probably think I wasn’t fit enough to ride up it”.

Many of the socio-ecological dimensions (as presented in Chapter Two) are encapsulated within these participant comments, with the interaction between dimensions appearing to determine participation. Fitness, hills, home and work location and gear operation skills were often discussed together by participants as having a collective influence on their participation. For example, Jacquie spoke of how changing office locations led to changes in her cycling behaviour:

I then changed jobs ... and because there was a bit of a hill there I didn’t really like cycling up the hill because I wasn’t familiar with using gears. So, I stopped cycling but now I’m back at [the old office] and I moved out into Camberwell ... I thought how can I make better use of my time? ... I thought I would catch the train to Richmond and then ride from Richmond to [work] which was what I used to do so I was confident that I can do that path ... I’ve been doing that now since I moved there which is only about a month ago. (Jacquie)

While it is not the intention of this chapter to explore outcomes of cycling education, in this case, Jacquie’s example serves to highlight how these barriers could be overcome through education and improving skills in gear use:

He showed us about the gears and what gears we should be using ... Before I wasn’t able to go out at all, but now because we live on top of a hill, I’m quite comfortable to just ride up the hill to where we live using the lower gears. It’s [about] knowing what gear to use, I think helps a lot in terms of being able to get to where you want to go. (Jacquie)

In such cases, skills, confidence, terrain and physical fitness were perceived to collectively influence participation. By altering one or more of these elements, for example improving gearing skills and fitness level through skill-based education and regular cycling practice, participant self-efficacy (largely through performance accomplishment, from the perspective of Bandura, 1977) could be increased and the impact of a permanent physical environmental feature such as hills could be
reduced. Relationships such as this one will be explored in further detail in Chapter Six, as a component of education outcomes. Jacquie’s example is representative of a number of participants who explained that moving house, office location or jobs, resulted in the route options being altered which subsequently impacted their interest in and willingness to cycle.

Skills, fitness and confidence were also associated with women’s apprehension regarding riding near faster cyclists. In many cases, faster cyclists were considered to be men in Lycra who would zoom past women on roads or recreational paths. Veronica’s comments were representative of feelings expressed by a number of participants: “the other scary thing is other cyclists whizzing past you without you knowing that they’re even there, so that’s kind of scary”. Women also suggested that male cyclists would impatiently sit behind them, making them feel intimidated as they struggled to stay on course and pedal. Lorrain explained this to be a concern for her: “… people will be boring down on me from behind, ringing their bells, trying to get past me or I’ll crash into them”. While Lisa expressed similar concerns: “some of the cyclists are that fast, I want it to be enjoyable as well and it’s almost like am I holding them up”.

Other women, including Mindy, spoke of how the presence of faster cyclist determined when and where they rode. “A good environment for cycling in is cycle ways and not at peak hour when the Lycra boys are out. I’ll avoid those times because they just go so quick and they’re quite intimidating”. Faster cyclists were, at times, likened to impatient cars that would sit behind participants and create a sense of intimidation, detracting from women’s cycling experiences, as explained by Jacquie: “… there are always aggressive drivers not wanting to go behind slow bikes. Even sometimes when I’m riding on the path, I notice that some guys, who are fast … don’t like to be behind slow bikes and they get annoyed”. These responses are consistent with findings reported by Daley et al. (2007) where participants who did not cycle or cycled occasionally suggested low levels of fitness and intimidation from faster, regular riders were causes for concern. Faster riders have also been
found to act as sources of intimidation in other studies (Fullagar & Pavlidis, 2012; Garrard et al., 2006).

Women generally did not feel a need or desire to cycle quickly. As a result, faster cyclists were not only intimidating because they were doing something women did not feel they could do, but cycling at that pace was also not something women wanted to do. This appeared to speak to a cycling culture perceived to be poor, where women were not only made to feel unwelcome by cars, but also by faster cyclists. Similar to this, feelings of inadequacy, intimidation, and/or a need to keep up with others and not hold them back filtered through to organised and recreational cycling. In this case, faster cyclists were friends, family members of people in organised groups or events with whom they would like to ride with, but did not feel confident or capable doing so.

Often as a product of past experiences, women were concerned that they were too slow, unskilled and unfit to keep up with others. Consistent with Bandura’s (1977a) perspectives related to self-efficacy, failing to perform the behaviour (cycling) effectively resulted in a progressive degradation of self-efficacy for many participants. Particularly in the case of Karen and Kate, this seemed to stem from negative experiences with partners in the past, encouraging them to cycle and then cycling faster and more easily than them, making these women feel inadequate and frustrated, as highlighted by Karen’s comments:

He’d have the nice light bike and I’d have to ride his old heavy mountain bike so I didn’t get into it … if I’d have had a bike that fitted me properly that I could be comfortable on … maybe I would have enjoyed it a lot more. Whereas, when you’re trying to keep up with someone, he’s got a lot more strength than me and it just wasn’t an enjoyable experience. (Karen)

Leanne reported a similar experience where she had been riding with friends and despite riding as fast as she could, was unable to keep up with the group, making the experience unpleasant. Participants such as Miranda spoke of this feeling of pressure at keeping up with others, even family members and close friends. “She’s a good cyclist … She wouldn’t get impatient and she’d be very encouraging … But it’s
more about me feeling like I’m holding someone like her up”. This was a particularly interesting trend and is supported by Garrard et al. (2006), who noted that even when friends and family members would slow down to support participants, women would feel guilty about them needing to do so. In addition to feeling as though she was holding up an ex-partner while riding, Kate spoke of her concerns regarding slowing down a group: “I’ve put off doing it because my fitness isn’t great. I tend to become stationary when there’s an incline and ... I wouldn’t want to get left behind or slow down the group”. Lynne discussed similar experiences on an overseas holiday, trying to keep up with groups of friends and other people on an organised tour:

I kind of got to the point where because the others were cyclists ... I felt that I kept holding them back and I didn’t want to do that ... I needed to have done more riding and more fitness ... I’m happy to be with other people rather than ... riding on my own but I want it to be people on a similar level. My friend who rides and does the triathlons, he [said] once you get better we’ll go out on the bike. But for me, I know he’s holding back and taking it easier to keep up with me. I’d rather do it with other people that are as dumb as me. (Lynne)

This comment from Lynne highlighted not just her discontent with slowing down others, but also her negative self-appraisal regarding her level of fitness, skill and ability to keep up. Many women spoke in a similar, yet less direct manner, with derogatory connotations associated with self-perceived pressure to keep up with others and their inability to do so. In many cases, this was an internally imposed pressure with friends, family members, and groups who (as stated by participants) were supportive and happy to cycle at a slower pace to assist participants. Such feelings of inadequacy, yet interest in the social aspects of cycling, and the risk management benefits associated with riding with others, was often what prompted women to seek the support of an organised group at a similar level.

In contrast to this, perceived social cycling pressure, social support, and the presence or absence of one or more cycling mentors played a major role in women’s cycling participation. Social support, as a key social influence from a socio-
ecological perspective, is considered to be related to a key function of social relationships (Heaney & Israel, 2008). Four types of social support have been proposed: Emotional support is related to the provision of empathy, love, trust and care; instrumental support involves the provision of tangible aid and services which provide functional assistance; informational support encapsulates advice, suggestions and information provided; and appraisal support relates to the provision of constructive feedback and information that can be useful for self-appraisal (House, 1981). Social support has consistently been found to be associated with adult physical activity participation, with family support in particular being positively associated with activity levels (Bauman et al., 2012; McNeill, Kreuter, & Subramanian, 2006). And social support has been suggested to be particularly relevant for women (Eyler et al., 2002; Sallis & Owen, 1999; Vrazel, Saunders, & Wilcox, 2008).

In most cases, study participants were influenced by one or more people with respect to their cycling participation. This role was typically played by males such as husbands, partners, brothers, or work colleagues. Generally, this person (or persons) either stimulated participant interest in cycling (informational and emotional support), or facilitated their involvement through providing guidance and assistance (instrumental and informational support). In some cases, this role was played by a female cyclist who was perceived to be more knowledgeable and advanced in her cycling expertise. The role of a significant other in the introductory phase of participation appears to be in line with the contention of (Green, 2005) with respect to sporting contexts. The author suggested that the introduction to sport participation often occurs through ‘sponsored recruitment’ (Stevenson, 2002) where support and encouragement are provided by significant others which encourages early participation experiences (Brodkin & Weiss, 1990; Kay, 2000).

The crucial supportive role of others is demonstrated through a range of participant comments. Lisa was supported by her son:

My oldest son showed me on a quiet day how to get there and ... gave me some pointers around what you do there ... Then a few
times, he’d say I’m going into the city today do you want to ride in with me. We’ve probably done it half a dozen times and it gave me the confidence. (Lisa)

Penny and Hailey along with others spoke of assistance provided by their husbands in purchasing bikes. While for Colleen and Carla, husbands were the main driving force behind their decision to commence/recommence cycling with their husbands being the ones purchasing their bikes, finding them education courses and accompanying them to the sessions, as shown by Carla’s comments: “He did all the research, he said I really, really want us to ride bikes ... so he did it all. He went out and bought bikes ... and he found [an education course]. I had to do it then”. Veronica and Andie found cycling supports crew in their partners’ families, while Karen was supported by a colleague at work who gave her a bike to use and helped her get started with her riding. This colleague, along with other co-workers, also served as a source of ongoing motivation, accountability and support for Karen: “I think having that peer group ... their support with people saying how ‘did it go with riding today’? If I didn’t ride, I’d have nothing to say and I’d feel bad”.

Consistent with findings presented by Daley et al. (2007), study participants typically perceived themselves to lack mechanical knowledge about bicycles resulting in males being relied upon when purchasing, maintaining, or repairing bicycles. This deficiency in many ways restricted the willingness of women to participate in cycling as freely as they would have liked. Consistent with findings presented by Daley et al. (2007), where participants with limited cycling experience reported a preference for a safety-in-numbers approach, participants in the present study generally felt vulnerable cycling alone. This was suggested to be as a result of not knowing how to make sure their bikes were safe before riding, how to repair a punctured tyre while riding, or generally how to keep their bikes in safe working order. Women in the present study did not want to know how to build a bike or the detailed mechanics of how they operate; they wanted to be able to learn basic mechanical operations and maintenance to feel less vulnerable as cyclists.
With respect to female cycling event participants, Fullagar and Pavlidis (2012) suggested that women frequently reported feeling constrained by a reliance on males for maintenance assistance while participating in the cycling event. Women were keen to overcome such restrictions through opportunities to learn. In the present study, women generally expressed a sense of relief in response to receiving basic mechanical pointers through education courses. They suggested that this provided them with a great start, although they wanted to become more proficient to reduce their perceived level of cycling risk, and to open up more cycling opportunities.

Beyond mechanical knowledge, women spoke of cycling knowledge more generally as something they did not possess or know how to obtain. Participants perceived cycling to be contained in a secret world full of implied knowledge to which they were not privy, as discussed by Trish: “You get the impression when you go to a bike shop that you should already know all this stuff. Everything looks very high tech”. In many cases, this type of perception resulted in women feeling inadequate and foolish for needing to ask silly questions, such as what a derailleur was, how to pump up their tyres correctly, or refit a chain that had fallen off. In interviews, participants often sought answers to such questions from the female researcher and expressed their appreciation at being able to speak with another woman about cycling. Participants suggested that other cyclists just seemed to know about these things and women did not feel comfortable asking too many questions for fear of ridicule. Such results support findings of previous research (Garrard et al., 2006), where participants suggested bicycle stores catered for experienced men, rather than novice women.

A perceived lack of knowledge was captured through comments made by Penny: “You’re not taught about any of these things. You vaguely have a helmet on and you ride the bike and if it’s got gears it’s good, and if it hasn’t well it hasn’t”. Lorrain also further linked a lack of knowledge to perceived societal norms and expectations: “In our society [we] tend to think that … this is general knowledge and beyond teaching it’s so obvious, but it isn’t if you don’t do it”. Women found their lack of knowledge
related to mechanics, techniques, equipment and so forth impacted their level of confidence. Other participants were limited by not having access to a safe, appropriate bike. Four participants did not have access to a suitable, roadworthy bicycle at any stage of data collection. These participants had not been in a financial position to purchase a new bike or were not convinced they would use it enough to justify the expense, as explained by Alana in her first interview: “I don’t want to spend a few hundred bucks if I’m not going to use it so I contemplated maybe buying a second hand bike”. Participants, who did not have access to a suitable bicycle throughout the study, did not engage in any cycling beyond education sessions.

Those who had bicycles and upgraded at some point during the study (two participants), suggested their riding experiences were generally enhanced, as demonstrated by Veronica’s comments: “I got my own bike ... Because I am enjoying it, I’m doing it more and I’m doing it faster and pushing myself more ... So I guess the bike has made a big difference as well in my enjoyment of it”. Those whose bicycles were damaged or reclaimed by owners who had loaned them to them initially found this to be a major barrier to cycling. In other cases, while a participant had access to a bicycle, the person they wanted to ride with did not, which also influenced participation. This was the case for Rhonda: “I was able to buy a second hand bike from school so that made it affordable. My husband still hasn’t got a bike so that makes it harder”. As such, access to a safe, appropriate bicycle was a major facilitator of cycling, while the absence of one made cycling very difficult.

The final major influence on all forms of participation was weather. Consistent with previous research (Dill & Gliebe, 2008; Garrard et al., 2006; Pucher, Garrard, et al., 2010), women typically preferred to cycle in sunshine with light breezes and mid-range temperatures and were deterred by cold and particularly wet conditions as captured by Penny’s comments. “I’m definitely a fair-weather bike rider. There’s no fun in the wet and the cold”. The tipping point was generally cold, wet weather where most women found all forms of cycling to be unappealing or unsafe. In
follow-up interviews that took place at the end of winter, women generally discussed the ‘terrible’ weather as having prevented their participation in cycling. Comments made by Miranda highlight this “I’ve hardly done any cycling ... because of the weather and I have to say if the roads were wet I probably wouldn’t ride”. Lorrain also reflected on the impact of safety concerns in wet weather: “I’m just not prepared to go out on wet, slippery roads”.

Overall, there were a few women who had committed to cycling as a form of transport who said they would ride rain, hail, or shine, while most admitted to being highly affected by the weather. A few women suggested they were not too deterred by weather yet in subsequent discussions suggested that “when the weather warms up” or “when it stops raining” they would get back on their bikes. Taken together, these comments demonstrate the important influence of weather, on cycling participation.

General participation influences were typically found to be consistent with previous research. The sections that follow further examine participation influences in an effort to clarify factors that influence specific forms of cycling. Recreational, commuter and organised cycling influences are discussed in the following three sections, in order to demonstrate the subtle differences in perceptions reported by women with respect to different forms of cycling.

### 5.2 RECREATIONAL CYCLING PARTICIPATION INFLUENCES

Recreational cycling was conceptualised as cycling alone or with others for mental and/or physical satisfaction in leisure time (self-organised). As such, riding with a group of friends to have a picnic or riding around a park after work were considered forms of recreational cycling, while riding to soccer training, for example, was considered commuter cycling. The present section considers motivations and supports for and constraints on recreational cycling specifically. All but one participant (32) indicated an interest in recreational cycling participation with close to half wanting to cycle regularly for recreation (more than once per week). The
other half of participants suggested they wanted to cycle recreationally on an occasional basis (less than once per week). When examining reported participation, this was the form of cycling in which the highest number of study participants had engaged prior to education participation, with 18 participants having cycled recreationally in the lead-up to education participation.

The general cycling motivations discussed in the preceding section were strong motivators of recreational cycling participation. In addition, opportunities to spend time with friends and family, explore new places and integrate activity with holidays, were strong participant motivators. The interaction between motivations such as enjoyment, exercise, exploration, and taking in the scenery were clear and Kate captured this through the following comment: “I really like riding along waterways. I try different bike trails … because I really like getting out in the open air … so it’s a way for me to get some exercise and something that I really enjoy”.

While Kelly discussed similar motivations related to enjoyment and freedom, which were linked to general cycling motivations: “I really like being able to go on a Sunday and take a blanket and put it on the bike, with a backpack and spend the whole day out”.

Somewhat specific to recreational cycling, participants explained how they perceived cycling to be an activity they could incorporate with family holidays and as a weekend activity. For some participants, such as Jodie, it was about including children in experiences: “I’m conscious that my son is getting to a stage where he’s got more endurance … and it would be nice to do longer excursions from home”. For others, it was a particularly good way for couples to interact and do things together, considered enjoyable and healthy: “I’ve got my husband into it which is great … we go for nice little recreational rides around our area. So it’s not just for transport it’s also for something nice to do in an afternoon or … weekend” (Marie).

Women appeared particularly motivated to ride on holidays for a range of reasons, with quiet coastal or country areas being considered more appealing, and the extra
time available facilitating recreational cycling, as highlighted by Rhonda’s comments:

When we go away on holidays we always take the bikes ... [it’s] nice and flat and it’s a slower pace there. We might ... go touring around the town and having a bit more of a look at all the different places ... we’ll pick different rail trails and make a day out so it’s kind of a cheap recreation for us. We’ll have a bit of a picnic and a bit of exercise and explore new territory. (Rhonda)

While the opportunity to spend active time with family was a motivator for many women to participate in recreational cycling, participants also spoke of the important social opportunities recreational cycling could provide. While joining a cycling group (organised participation) might offer participants opportunities to socialise with others, women particularly appreciated being able to ride with friends and established social networks. This is consistent with Henderson and Gibson’s (2013) contention regarding the “role of leisure in facilitating and strengthening social support and friendships amongst women” (p. 123) and the prominence of such findings in women’s leisure research. Many women saw cycling with friends as opportunities to engage with their social groups, as highlighted by Marie’s comments below:

The ride was really positive ... we all really liked it because we went somewhere and we caught the train back and we were all “let’s do it again”. It was really fun and because you’re doing it with friends, you’re not going out to find other people riding and it’s like a built-in network. (Marie)

Given that recreational cycling was the most common form of cycling in which women participated prior to education, and in which they wanted to participate post education, the general cycling motivations discussed earlier in the present chapter were particularly strong motivators of recreational cycling. Socialising with friends, spending time with family, and exploring new places on weekends or holidays were key additional drivers of participation.

General cycling participation supports and constraints also appeared to flow through strongly regarding recreational cycling. The presence or absence of social
cycling networks (people of a similar level to cycle with) was particularly influential in the context of recreational cycling. Social networks have been defined as the “web of social relationships that surround individuals” (Heaney & Israel, 2008, p. 190). Such social networks are the mechanism through which social support may be provided. Those who had friends at a similar level, who cycled, were often supported by such networks. In this regard, the presence of social cycling networks appears to provide participants with the emotional and instrumental support (House, 1981) they require with respect to their cycling.

Women generally felt that having one or more friends to cycle with had a positive influence on recreational participation, while the absence of such support networks constrained participation or detracted from experiences. Kate discussed her lack of an appropriate social cycling network: “It is more enjoyable when you’re with someone. Because I don’t have any friends that ride at the moment, I just go riding by myself”. Marie emphasised the value she placed on having others, at a similar level, to ride with recreationally:

I can see myself one Saturday morning saying maybe I won’t bother ... whereas I knew I had to meet people at 9 o’clock ... so it definitely keeps me doing the longer rides and doing the more recreational rides as opposed to riding to the shops and that kind of thing. (Marie)

Despite the value of social cycling networks and support to women, participants specifically discussed feeling pressured to keep up with others on recreational rides as a negative influence, as highlighted earlier in the chapter. In addition to these social factors, influences related to cycling infrastructure such as access to cycle paths, facilitated by a safe, manageable route to an entrance (i.e., limited interaction with cars, few hills and a short distance), influenced participation. Many women suggested that they had paths nearby, but had not been able to plan a route that was safe and comfortable to get to them (as touched on in the preceding section). Further limitations or supports for women’s participation in this situation were having a car with a towbar and an appropriate rack to use to transport bicycles, or having the strength to lift a bike in and out of a hatchback car boot.
In cases where women did not have one of these options (safe route to an appealing path, a bicycle rack or the ability to lift the bike in and out of cars), recreational participation was considerably constrained. Miranda captures this sentiment in expressing that, “there is also the issue of how to get the bike somewhere, transporting the bike. I haven’t got a tow bar and I couldn’t throw it in the back of my car” (Miranda). Lauren similarly expressed barriers associated with bike transportation for cycling in scenic parts of Melbourne: “It’s getting yourself and the bike from your home to that place before you start ... Either you’ve got to get a towbar and a rack on your car or you have to get easy access to a train”. Results with respect to issues associated with bicycle transportation do not appear to have been examined thoroughly in previous research.

The final additional factor that was a significant influence on recreational cycling was time. Time is one of the most commonly reported barriers to physical activity and exercise participation (Sallis & Owen, 1999). Cycling appears no different with respect to recreational participation. Lack of time was reported as a particularly dominant influence on women’s cycling in previous research (Cycling Promotion Fund & Heart Foundation, 2013; Garrard et al., 2006). In the present study, working women, many of whom had children, were largely constrained by time and often reported this to be a reason they did not participate in recreational cycling as often as they would have liked. Or it was a reason they were more interested in commuter cycling. For others, time, particularly transitioning into retirement, was a facilitator that in some cases prompted recreational or organised cycling participation.

Women spoke about how they would cycle more for recreation when a current life event settled down (ill family members, high-pressure work environments, or, young children). Lynne spoke of issues faced by many women with respect to managing competing priorities. “If you really want to do something you find a time ... but in practical terms I think it is harder if you’re doing it as an adult and ... as a female because sometimes we ... have more obligations”. Colleen, close to
retirement age, spoke of a hectic period of her life as a barrier to recreational cycling:

Time restraints have been another reason why I haven’t … I work four days a week and I get very tired … We moved house this year and [weekends have] been taken up a lot with getting the house organised, unpacking … But I think once I get settled, I’ll probably do a bit of riding here and there. (Colleen)

Several women suggested that holidays, when they had more time available, provided opportunities to cycle for recreation. While many participants spoke of time as a constraint with respect to recreational cycling, Sarah in her late 60s could see that when she retired, recreational cycling might be a more realistic prospect. Amy had retired several years earlier and found the time she had available facilitated her cycling interest. Jacinta discussed how her recent change in life-stage had facilitated her participation in recreational cycling: “I’ve recently retired … so I wanted to get something that would be enjoyable … I’ve always wanted to get back to bike riding and only now I’ve got the space in my life to do it”.

From these comments, it appears that time acts as both a positive and negative influence on participation, depending on the situation of the individual. A range of socio-ecological factors influenced women’s participation in recreational cycling, in different ways. Those who lived a manageable distance from cycle paths had time available and had people of a similar level to ride with, found this form of cycling to be a more realistic possibility. While Garrard et al. (2012) discussed women’s household responsibilities as potential barriers related specifically to commuter cycling, those with household, family and/or work responsibilities in the present study particularly found it more difficult to engage in recreational cycling as a product of such responsibilities. While women appeared to find recreational cycling to be the most accessible form for beginner cyclists (consistent with Daley et al., 2007), using quieter paths at off-peak times, not all women could easily transport bikes to such paths, or had a safe and comfortable route to ride there. As such, recreational participation distinctly required time and quiet, traffic-free environments to facilitate participation.
5.3 COMMUTER CYCLING PARTICIPATION INFLUENCES

Commuter cycling involves using a bicycle for transportation purposes and research suggests that commuter cycling in Australia is largely dominated by males (Garrard, 2009). Responses provided by women who used their bicycles for transport at some stage of the research (N=13), and those who indicated an interest in commuter cycling (N=22), are of particular relevance in this portion of analysis. Motivations for commuter cycling appear distinct in many ways from other forms of cycling. While recreational cycling and organised forms of participation can typically be engaged in during recreation time essentially as a hobby, source of entertainment, or recreational activity, commuter cycling offers participants a different set of benefits. In particular, commuting by bicycle provides a mode of transport that is affordable and can provide a way to incorporate physical activity into people’s daily lives, while providing positive outcomes for the environment (Bauman et al., 2008; Carlos & Phillips, 2000). Garrard (2009) suggested that from an Australian perspective, commuter cycling has an important role to play in encouraging Australians to become more physically active.

Exercise and health, and enjoyment and empowerment, were discussed as strong motivators across all forms of cycling. Unsurprisingly, with regard to commuter cycling, saving time and money, and benefitting from enhanced convenience aspects of such cycling participation were the most commonly reported reasons why women wanted to cycle for transport. In considering motivations, Garrard et al. (2006) noted that women reported convenience benefits associated with commuter cycling as more important than cost benefits when considering reasons to commence or continue to cycle for transport. The authors suggested, however, that as petrol prices increase, it is likely that financial benefits associated with cycling will be increasingly valued by participants.

In a survey which focused on women and cycling, the Cycling Promotion Fund and Heart Foundation (2013) found that women’s cycling motivations were often driven by cost benefits, with 45 per cent of participants suggesting cost was ‘quite’ or
‘very’ important with respect to cycling (on a five point scale), while 36 per cent suggested it was a convenient form of transport. Yet 69 per cent agreed with the statement “cycling is a convenient way to get around” (p. 12). Generally, research suggests that both convenience and cost are associated with women’s participation in cycling, with commuter cycling being the obvious relevant form of cycling.

The majority of study participants who commuted to work in particular would otherwise have used public transport to get to their destinations. Dissatisfaction with public transport was a key reason why women were attracted to commuter cycling. Garrard (2009) suggested that when examining transport-related cycling influences, alternate transport options are relevant to consider given “travel mode choices involve weighing up the perceived benefits and barriers of alternative travel modes” (p. 10). Veronica summed up her experiences with Melbourne’s bus services and linked them to her motivations for cycling to work regularly: “It takes longer than cycling because you’re waiting for the bus and then the bus gets stuck in traffic like a car does so I do prefer to cycle”. She also noted that on the bus she was exposed to germs, and in winter was constantly coming down with colds in response to public transport use. Andie, who commenced commuter cycling post education participation, explained that the big motivator or push she needed to try cycling to work was when her car broke down and was not available for use.

Similar to Veronica’s experience, Lisa explained that in Melbourne, the tram was not an appealing option: “The tram tonight has taken 45 minutes from the city to [the northern suburbs] which is ridiculous and I can walk it in that time or less than that time”. Marie’s Sydney bus commute was no better suggesting that when riding she could leave later than taking public transport. For the women who successfully cycled for commuter purposes (most of whom lived in inner suburbs of Melbourne or Sydney), all perceived their route to work to be safe. Typically, separation from cars was available, and most suggested that the safe route was crucial to their willingness to ride. This reinforces previous research findings which indicate separation from cars is essential in encouraging women to cycle (Bauman et al.,
As the previous comments suggest, saving time was often reported as a source of motivation for commuter cycling, whether this was a product of women experiencing shorter commute times on their bikes than on public transport, avoiding the need to find parking or otherwise. Peta spoke of her satisfaction with commuting by bike for the convenience it provided: “I rode into ... the meeting ... which was better than all my colleagues who were then running around trying to feed the meter when their hour was up”. Andie also noted the time she saved with riding to soccer training rather than driving: “It is literally quicker to ride my bike ... and you feel a bit smug as well getting there and I beat all of you who drove”.

In the context of efficient use of time, Karen factored in the time she would otherwise need to spend in the gym, on top of her commute to work by public transport: “I can definitely see the difference between an hour’s bus ride with an hour’s gym session, versus a 40 minute ride. It’s a no-brainer really”. Veronica, also explained that she would otherwise struggle to find time to be active, so riding to work was not only a quicker mode of transport, it also provided her with time to exercise. “It’s a really good way of fitting in some exercise for a mum ... you don’t have time to go to the gym”. Garrard et al. (2012) discussed women’s responsibilities such as childcare and household duties as limiting participation in commuter cycling. Given that males were not interviewed in the present study, it is difficult to compare influences. However, it can be noted that a variety of women used their bicycles for transport in the present study with single women and those in relationships with and without children all being represented in the commuter cycling group.

While convenience was a motivator for commuter cycling in many cases, financial benefits were also noted as being attractive. Karen sold her car to help pay off debts associated with her previous battle with depression. She saw cycling and public transport as more cost-effective ways of getting to and from work and so using a
second hand bike that did not require petrol, registration or other ongoing financial investment was a very attractive option. Marie further highlighted the financial incentives of cycling for her given she was able to mainly use her bike for regular commutes to work and around her local area: “I’m always riding by the petrol station and thinking ‘I don’t need you’. I save so much money”!

Overall, the convenience, time and money-saving benefits were strong motivators for women to commute by bicycle. In addition to these motivations, women were also conscious of the environment in their interest in commuter cycling. This is consistent with survey results which found environmental benefits to be in the top four reasons women cycled (Cycling Promotion Fund & Heart Foundation, 2013). Kate explained that one of the reasons she enrolled in cycling education was because she wanted to be able to commute and reduce her impact on the environment: “I’m also interested in sustainability, so I hope that once I build up my skills, my fitness and my confidence then I might be able to use the bike to get from A to B more”. Penny also discussed environmental incentives: “It’s nice that we’re using our own energy and not sending up all these terrible fumes”.

Generally, those women who perceived cycling for transport as a convenient and possible option (i.e., those who believed they lived within riding distance of work and had a safe, manageable route available) were motivated by the time and money it saved them, while also providing them with an opportunity to combine transport with exercise. Environmental benefits were generally appealing and provided a source of motivation and positive reinforcement for women, although environmental conscience was not often the strongest motivation.

Those who wanted to cycle for sustainability reasons but were constrained because their route options were limited, or because they had to travel a long way or did not feel confident on the road (discussed later in the chapter), were generally unable to overcome such barriers. It was the convenience related to avoiding unattractive public transport systems and removing the need to engage in exercise in addition to time spent commuting that was the main attraction for participants. These
motivations varied significantly from specific recreational cycling motivations discussed previously, and those reported with respect to organised participation (discussed in the following section).

While the majority of women indicated an interest in commuter cycling, a range of perceived barriers often prevented participants from engaging in this form of cycling. In considering behaviour change processes proposed by the Transtheoretical model (Prochaska & DiClemente, 1986; Prochaska & DiClemente, 1982; Prochaska & Marcus, 1994), noted in Chapter Two, the time women spent in contemplation and preparation stages (considering and preparing to make a behaviour change such as cycling), was typically considerable with respect to commuter cycling, more so than for recreational cycling. Many of those who engaged in transport-related cycling also seemed susceptible to relapse (ceasing commuter cycling), due to the complex interplay of individual, social, environmental and policy-related variables that influenced such behaviour.

The perceived barriers associated with commuter cycling were far greater and more widespread than for recreational cycling. Many of these factors were closely related to, and intertwined with, general participation influences. Practical considerations such as needing to carry things to and from destinations and having access to adequate bike equipment to facilitate this, or confidence about carrying equipment (especially laptops) without falling, influenced women’s decisions to commute. Participants found that if they either had adequate end-of-trip facilities that they felt comfortable using (e.g., showers, bike storage, lockers), or believed they could cycle in regular clothes to their destinations, commuting by bicycle was a more attractive prospect. Without this, and knowledge of commuter cycling social norms and actions, cycling to work and other destinations was not seen as an easy task. Some women also discussed being unsure what to wear on a bike and suggesting they didn’t want to arrive at work, dinner, or, other locations in their track suit pants or looking generally dishevelled and sweaty.
It was in the context of commuting that traffic, infrastructure, driver culture, terrain, speed limits and pavement riding laws, skill level and confidence collectively influenced participation. Women who successfully commuted to work and other destinations (in both Melbourne and Sydney), generally perceived their routes to be safe and manageable, despite available cycling infrastructure and individual skill levels varying between participants. They had adequate separation from cars in their opinions, and had this not been the case, they would have needed to find a different route, or cease cycling. Leanne’s experiences (as highlighted by the following comments) are representative of many women’s experiences or perceptions. Finding a safe route to work facilitated commuter cycling:

The other thing for me was working out how to get to work because I was really worried about riding on the road. I think my actual skill in riding a bike is fine but I had that from a kid ... but it was really around being worried about being on the road ... I couldn’t work out how to get to work without riding down pretty main roads and I just wasn’t prepared to ride down any of them ...

One of the big changes was someone at work I got talking to who I discovered rides to work who lives in the street behind me ... She said there’s this back street path that lots of cyclists take and she said it’s actually right near your house so she told me how to do it ... I actually walked it to start with ... I thought there’s not much traffic here, I understand how to get there, I think this is doable from my level of fitness in terms of not too many great big hills or anything and then it joins up with the bike path and goes the rest of the way on the bike path to work. (Leanne)

This comment speaks to the perceptions held my most women with respect to commuting by bicycle. Many were willing to try and interested in commuter cycling for a range of reasons, but only if they could find a suitable, manageable route to their destination. And often, they wanted help with finding an appropriate route, possibly asking a more experienced cyclist or instructor to ride with them to their destination, or practicing on their own in low pressure times, when no specific arrival time was imposed.

Lisa discussed getting a cycling instructor to assist her in planning her ride to work: “I haven’t actually done a commute yet ... I think I’ll ... get one of them to ride to
work with me”. These behaviours seemed to be symptomatic of low levels of confidence (self-efficacy) stemming from a range of individual and external environmental factors. Furthermore, this seems indicative of the cognitive processes taking place through the contemplation and preparation phase with respect to the behaviour change of interest (commuter cycling). Women were preparing to engage in the behaviour by planning and practicing the route to work.

The variety of socio-ecological dimensions Leanne discussed in the earlier excerpt collectively formed a code or influence which was labelled ‘safe, appealing route options’. This factor was a strong influence with respect to women’s commuter cycling behaviour (and other forms in different ways). Those who were not comfortable with the roads available and the speed at which traffic was allowed to travel, but who really wanted to cycle to a specific destination, were often willing to ride on the pavement, and risk being fined, rather than cycling with cars. This links strongly to the concept of risk aversion discussed in the literature (Cycling Promotion Fund & Heart Foundation, 2013; Daley et al., 2007; Garrard, 2003; Garrard et al., 2006; Garrard et al., 2012; Garrard et al., 2008; Pucher, Dill, et al., 2010). Some women suggested that laws preventing adults from cycling carefully on the pavement were illogical. Debbie’s comments below are probably one of the more extreme examples, however, many women perceived pavements as a safer place to be than roads:

> The ruling law that you’re not allowed to ride on the pavement, I ignore that ... I biked down Blackburn Road on the pavement and ... there was building and construction, I had to then go on to the road ... but as soon as I could, I got back on to the pavement ... [My husband] said I’m not going to run the gauntlet of the police, I’m going to be on the road and I said well I’m not, I’m going to be on the pavement and if they say anything then I’ll handle it. (Debbie)

While not all participants cycled on footpaths, several suggested they would be far more comfortable on the pavement than on roads. Despite a negative perception of footpath restrictions expressed by some women, generally participants were in support of helmet laws and people wearing helmets in Australia. Even those who
suggested that ‘helmet hair’, the flattening of one’s hair as a result of wearing a helmet, was a deterrent regarding commuter cycling typically supported the wearing of helmets and suggested that if helmet laws were removed they would still wear one. Responses were mixed as to whether women were bothered by helmets, however, none suggested that they would advocate a change in the law or would stop wearing a helmet if the law was changed. For example, Ellen stated that, “I have no problem wearing a helmet. It doesn’t put me off cycling”, while Lisa also strongly supported wearing a helmet, despite it flattening her hair: “I wouldn’t dare ride without a helmet”. The following comment about helmets captured a participant’s response to media commentary on the issue:

Personally I think you should wear one [in case] you fall off your bike but it was interesting to read in the paper a lot of people talking about if the government removed this rule, a lot of people seem to think it’s a big barrier. I personally don’t see it. (Jodie)

In addition to helmet laws and footpath cycling regulations, women discussed traffic speed and suggested the speed at which traffic travelled made mixing with cars less attractive. While some women were unsure about commuting by bicycle using back streets, many suggested that they were willing to do so as the traffic could not move as quickly and they were not at such a high risk of injury. Large arterial roads in the eastern suburbs of Melbourne such as Maroondah Highway and Springvale Road, in the north of Melbourne including Victoria Parade, and Parramatta Road in Sydney’s inner west were all suggested to contain high volumes of fast moving traffic, which generally made them a no-go-zone. Where traffic travelled more slowly and/or a high degree of separation between cars and cyclists existed, women were more willing to cycle for transport (and other purposes). This is consistent with previous research which suggests that separation from traffic supports women’s cycling (Dill, 2009; Garrard et al., 2008; Krizek et al., 2005).

As discussed in an earlier section, Jacquie explained that moving house and office locations were key reasons she ceased and recommenced commuter cycling. This experience was similar to other women where, in several cases, participants reported that a move to a new suburb or a change in office location or job
prompted them to consider cycling. Alternatively, in some cases, such a change restricted their ability to use their bikes for commuting purposes. This was dependent upon whether the new route was perceived to be safe and appealing. Women discussed concerns regarding commuting, particularly in winter, where they might be required to cycle in the dark. This was not deemed safe by most women, particularly along paths, with others suggesting that they did not have equipment such as lights, reflectors and high visibility clothing, which would further deter them from cycling.

Equipment required for commuting was typically considered to be more complex than for recreational or organised (non-competitive) forms of cycling. This appeared to stem from a need to potentially carry things, ride in different weather conditions and lock up their bicycle securely. Women often did not know what equipment and clothing they needed and felt uneasy asking in bicycle shops. Locking up bikes in Melbourne and Sydney was not something with which women were entirely comfortable, particularly not knowing about or having access to the relevant equipment. Lorrain, for example, indicated that, “insurance and theft ... is another thing that’s made me a little tentative about the entire space”. Many women told stories of having bicycles stolen or having friends or family members who had had bikes stolen, and this concerned them. During her first interview, Andie told of how this experience influenced her participation:

> Once, my bike did get stolen. It was quite an old bike but after that I thought ... it’s too easy at the station ... Tying it to posts and when you’ve spent $500 on a bike ... that’s definitely a factor and I don’t want to get it stolen. (Andie)

This apprehension was also said to be linked to social norms in Australia where cycling was not a dominant transport form, meaning that secure parking facilities were not always available, and if one were to lock up one’s bike, it was often the only one there, leaving it vulnerable to theft, vandalism and damage. Lynne, for example, observed, “I don’t think there are that many facilities around where people can actually leave their bikes”. This was a strong perception held by women and those who could securely lock their bikes at work or other locations were more
open to cycling for transport. Kate spoke of her issue with commuting for work by bicycle: “We have fleet ... bikes ... I think it’s great ... but the issue for me is I’m going to people’s homes and there wouldn’t necessarily be a place to securely park the bike”.

Although security was a major perceived concern, some women suggested that once they started commuting, their concerns were eased as they realised more people commuted by bicycle than they had originally thought. And necessity facilitated their search for relevant bicycle infrastructure at their desired destinations. By the second interview, Andie was commuting regularly by bicycle and explained that her security concern regarding locking her bike up had eased:

You really notice when you ride how many other people do actually ride ... I think initially a really big fear of mine was locking it ... [But now] I’m not really that worried. I’ve got a lock and I take all the lights off ... it’s just so much easier to ride my bike and ... there are so many other bikes as well, you don’t feel that bad locking it up or you don’t feel like you’re putting yours at risk. (Andie)

This participant spoke of the number of bikes and people cycling as a support/facilitator of her participation. Social norms related to commuter cycling in Melbourne and Sydney influence women’s commuter cycling perceptions and participation in a number of ways. It was discussed earlier that women saw faster male cyclists as intimidating. In some parts of Melbourne’s northern suburbs and Sydney’s inner west, women spoke of cycling-friendly suburbs, streets, or areas. This is in line with observations presented by Pucher, Garrard, et al. (2010), with respect to specific areas of Melbourne and Sydney as being more cyclist-friendly than others. However, generally, commuter cycling culture was seen as male-dominated, as Garrard (2009) also suggested was the case. Lycra and expensive road bikes were considered a prerequisite for blending into the commuting cohort in these two Australian cities. As Jodie articulated, “… this is partly a thing we do in Australia where you have to wear cycling gear if you’re cycling and again you look at somewhere like Copenhagen or Stockholm and people don’t do that, they’re just
cycling”. In fact, Lycra itself was a point of both intimidation and repulsion for most participants, particularly with respect to commuter cycling.

Study participants did not want to ride with fitter males in Lycra, and mostly did not want to conform to this trend themselves, except where deemed practical (e.g., to manage weather conditions). A number of participants discussed their perceptions related to the dominance of ‘serious’ male cyclists, dressed in Lycra as highlighted by Miranda: “I see people out riding all the time but they look like serious riders. Particularly around here ... on Sunday morning and there’s all these very fit looking people usually men in Lycra cycling together”. Interestingly, one cyclist in Sydney suggested that the cycling culture and social norms in Sydney were more extreme in this manner than in Melbourne:

I think I’m not quite in the elite pack yet. Most cyclists in Sydney aren’t like they are in Melbourne where they’re just riding in their clothes to work. All the other cyclists wear full on Lycra and have road bikes and clip-ins and they’re very cool ... I got a cycling top for my birthday and I was wearing it for a week or two and then I thought I’ll just wear a tee shirt so it doesn’t really interest me to wear the Lycra and the pants and all that. I wear a top and shorts.

(Andie)

Women often ranked their city in comparison to other cities they had visited across the world with respect to cycling friendliness. In fact, cities or locations in which women had lived, worked or stayed could be placed along a virtual continuum with respect to commuter cycling attractiveness, based on responses. Consistent with research (Buehler & Pucher, 2012; Pucher & Buehler, 2008; Pucher, Buehler, et al., 2010; Pucher & Dijkstra, 2003), Germany and/or the Netherlands were described as ideal cycling destinations by women who had visited or read about such locations. This was perceived as being related to culture, infrastructure and terrain, although most acknowledged that weather was less desirable in such places than in Australia.

When breaking the continuum down further, most acknowledged that Melbourne’s infrastructure including paths and cycle lanes was far more advanced than that seen in Sydney. This supports the contention of Pucher, Garrard, et al. (2010) who
suggested that infrastructure, policies and general conditions in Melbourne are significantly more supportive of cyclists than in Sydney. Yet one participant who had moved to Sydney from Miami and grew up in Venezuela thought that Sydney was miles ahead of other cities she had lived in with respect to cycling culture and infrastructure, particularly the availability of off-road cycle paths. This would suggest that on the continuum, while Sydney is less attractive than Melbourne, it is still perhaps a more attractive place to cycle than many cities around the world. Despite Andie’s comments above which suggest that the commuter cycling culture in Melbourne was more desirable than in Sydney, most Melbournian participants thought otherwise, and considered the commuter cycling culture to be improving, however elite and male-dominated, with a few select geographic regions/suburbs having the right approach to promote cycling for all.

The influences discussed, specifically related to commuter cycling, highlight the strong role of self-efficacy with respect to women’s active transport behaviour. Through perceiving natural and built environments to be less than desirable, individual skill and knowledge to be below standard, and experiencing social and cultural norms that suggest driving is the best way to travel, women’s self-belief that they could commute by bicycle was generally low. This was the case across all forms of cycling, but was particularly pertinent to the issue of commuter cycling. Despite this, a number of women were able to overcome such perceived barriers, in many ways as a consequence of specific individual supports they had available and in some cases, through participating in cycling education. This will be discussed further in Chapter Six.

5.4 ORGANISED CYCLING PARTICIPATION INFLUENCES

Organised participation was generally conceptualised according to the definition provided by the Australian Bureau of Statistics (2008) as activities that are officially organised by a club or association (i.e., sporting club, social group, or workplace). Two further sub-categories (competitive and non-competitive) were established within this category based on the work of LaChausse (2006). The most commonly
reported forms of organised participation in which women were interested included cycle touring holidays, social cycling groups, and community cycling events (organised, non-competitive cycling formats), with competitive cycling forming a separate and very different form of organised participation.

Interestingly, and perhaps unsurprisingly, there was little to no interest in participating in any sort of competitive cycling amongst participants. Garrard et al. (2006) found that a number of women reported being intimidated by elite athletes, but motivated by ordinary women who cycled. While Fullagar and Pavlidis (2012) suggested that in the context of cycling events, women found the presence of fitter males (who in many cases exhibited competitive tendencies) and women’s own insecurities detracted from their participation experiences: “They [some male riders] wait for you at the top of a hill and you feel so guilty if you can’t keep up” (p. 161). As such, women preferred self-imposed challenges, rather than struggling to keep up with others or win a contest in aforementioned study (Fullagar & Pavlidis, 2012).

In Chapter Two, it was noted that previous research had identified a high degree of risk aversion related to cycling as a barrier to participation. In the case of organised, competitive cycling participation, this heightened sense of risk and fear of injury was one of the main reasons why women in the present study did not want to participate in any cycling events or activities which required them to compete or go fast. This was despite some of the participants admitting that they were interested in other competitive sports such as soccer, basketball, or running, and some women reporting that they enjoyed tracking their speed on their cycling odometers when they went down hills or set themselves challenges to ride to destinations in shorter timeframes. The selection of comments below (see Table 5.4) provides some insights into the lack of interest women showed with respect to organised, competitive cycling, related to women’s safety concerns and the like. As such, motivation to participate in competitive cycling was close to non-existent amongst participants.
Table 5.4: Competitive Cycling Perceptions

<table>
<thead>
<tr>
<th>Participant</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ellen</td>
<td>I’m just not competitive like that and I do it for fun and I don’t want to make it dangerous. So I think it would get dangerous if I was racing on the roads. I don’t want to train hard and have joint or muscle issues.</td>
</tr>
<tr>
<td>Andie</td>
<td>I think it scares me going fast. You’re not in any protective clothing and... somebody pointed out the other day if you’re going at 40 km/hour and you fall off you’re going to get really badly bruised and grazed and messed up so I think it scares me a bit to go those speeds.</td>
</tr>
<tr>
<td>Lauren</td>
<td>I’m not keen on doing something fast for the sake of it and especially bike riding because I think it’s a dangerous sport because if you fall off you have no protection and people get killed that way.</td>
</tr>
<tr>
<td>Rhonda</td>
<td>No. I don’t really like racing. I don’t like going downhill fast.</td>
</tr>
<tr>
<td>Alana</td>
<td>The Tour de France and people getting killed by cars... and I’m not terribly sporty by nature anyway.</td>
</tr>
</tbody>
</table>

In contrast, non-competitive forms of organised cycling were perceived as opportunities for personal development and for women to improve their level of skill and confidence and establish new cycling networks. Getting back into or commencing cycling for the first time was generally seen as a journey best supported by others. Daley et al. (2007) found that “female occasional riders expressed feeling safer when riding with others” (p. 46) and particularly felt more confident in the controlled environment experienced when participating in cycling group rides and community events.

Some participants in the present study had established networks that could sufficiently support their transition into cycling (friends, family members, or work colleagues), while other women did not feel they had access to sufficient cycling support networks (people at an appropriate level) and wished to become involved in organised forms of cycling to build relationships with other cyclists. This is again consistent with observations made by Henderson and Gibson (2013) with respect to women’s leisure research having placed a strong focus on the role of leisure participation in supporting friendships and social relationships.

In a study which explored women’s experiences participating in a recreational (non-competitive) cycling event, the aspects of the event women suggested they valued...
most included: fitness, strength and relaxation opportunities away from everyday life; social interaction with existing and new friends; ‘me time’; the sensory experience associated with exploring new places; opportunities to learn about cycling; environmental benefits; and supporting rural communities (Fullagar & Pavlidis, 2012). These findings strongly correlated with responses offered by participants in the present study with respect to organised participation. Social and personal development opportunities were valued, while competition was seen as a negatively imposed, masculine element of organised participation, which detracted from experiences (Fullagar & Pavlidis, 2012).

There was only one participant interviewed who reported having participated in a cycling group prior to engaging in cycling education. Seventeen participants showed an interest in participating in a cycling group of some sort in one or more of their interviews, while 13 women suggested they were interested in engaging in other, non-competitive forms of organised cycling. Such participation generally included community/recreational cycling events such as Around the Bay in a Day (Victoria), Great Victorian Bike Ride, the Gong Ride (New South Wales), or riding on a cycling touring holiday, for example.

Many forms of non-competitive, organised participation were seen as opportunities for study participants to find new people to cycle with, be mentored and supported by more experienced riders and ride in supported environments where risks were managed by knowledgeable people. Women interviewed enjoyed setting realistic challenges, and for some, a regular routine activity was appealing to help them stay motivated to cycle often (as distinct from a regularly ‘training’ routine). Similar to such findings, Fullagar and Pavlidis (2012) suggested that in the context of cycle touring events, women particularly valued the risk management aspect of cycling event participation. The route was predetermined and along the way there were measures taken to manage risks associated with participation. The emphasis on setting a realistic challenge and being able to participate in reasonably controlled environments was particularly important to participants in the aforementioned study.
In the present study, women’s interest in routine, organised non-competitive cycling participation (particularly group cycling) did not necessarily mean they wanted to cycle every week. Having something available each fortnight or month was considered appealing as a source of motivation for study participants. Women were not entirely sure what cycling groups existed, however, bicycle user groups (BUGs) and touring groups were considered the most desirable options that were known or suggested to participants by cycling education instructors. Lynne, who learned to cycle as an adult through a cycling education program, said that while she had progressed a great deal through education, she would like to continue her development by riding in a supported format, as her cycling friends were too advanced for her to keep up with while she was still learning. Lynne’s comments below highlight the developmental and support role desired through group participation:

“I actually want to get involved with BUG too. I think it helps to have an organised structure … I only did it twice on my own because I think especially at the start when you’re not that good, you kind of feel a bit silly on your own … I imagine with BUG they know the route and you can go along and be learning without having to think hang on what should I be doing here?”

Lynne also highlighted motivations associated with committing to a group: “When you’re on your own and you say … ‘I’m going for a ride’, it doesn’t always happen whereas if you know that you’re doing it with a group of people [you are more likely to]”. Hailey was particularly motivated to cycle with a group, describing herself as a ‘pack animal’ who needed others around to motivate herself to cycle. Lauren explained that she had been involved in a cycling group as a young woman. Now in her 50s, she was looking to recommence cycling and for her, the risk management side of group participation was attractive: “I’d probably join a local bike club so that I could go with other people … If you have a puncture or an accident there’s backup … and you’re more visible as a group” (Lauren). This sentiment was echoed by several participants and is consistent with findings presented by Daley et al. (2007) where less experienced cyclists suggested they would prefer to cycle with a group where risks would be managed by those with more experience.
Hailey was introduced to the concept of a BUG at the education session she attended, where a representative from a local BUG came to provide some information to participants. As mentioned earlier, this participant made it clear that for her, cycling needed to take place in an organised group and similar to her involvement in a bush walking club, she wanted to find a suitable group to ride with. She told of her initial experiences riding with a BUG, describing the people as “very welcoming, very friendly, the group was fantastic ... I got a flat so they all changed it for me. I was very well looked after ... knowing if something goes wrong ... there’s someone around you who can help out”. Jacinta also got involved with her local BUG after having sought a new social group to cycle with. She lacked confidence on the roads and in addition to the social opportunities she sought, Jacinta wanted to be able to draw on the knowledge of others and engage in development opportunities, as demonstrated by the following comments:

The group is very supportive and they’ve helped me and I’ve gradually learned how to check my tyres and do stuff like that. They have good leaders and ... they’ve been very considerate ... It’s a combination [off-road and path riding] and it’s really good practice ... Because of those things now I feel like I can go on the road so I do ride on the road and as I say you get a lot of practice on that trip. (Jacinta)

Debbie, along with other women, saw riding with a group as a good way of challenging and pushing herself. “Probably a sense of achievement that my fitness had come up enough that I would be going with a recognised group, people that are already doing it”. Amy reiterated these sentiments regarding her involvement in a BUG: “It’s for the most pushing me at the moment, almost pushing me to my limit”. Similarly, women who reported an interest in cycling events or touring holidays were looking to set themselves a challenge and find a different way of enjoying cycling by experiencing a new route, pushing a little further, and seeing what individuals were capable of. This is consistent with previous research which found that many women wanted a challenge but without the competitive elements males often brought to cycling events (Fullagar & Pavlidis, 2012).
Rhonda commented that she completed her first fun-run at age 51 and perhaps a cycling event could provide her with a similar challenge. Alana thought a cycling event could offer similar benefits as highlighted by these comments: “Around the Bay would be a route that I wouldn’t normally do ... To do that would be cool and I think the distance itself would be a bit of an accomplishment”. Many women suggested they would be interested in a community cycling event that was a manageable distance and terrain (flat or small undulations were desired), however, for most, it was not a high priority or something that they needed to do in order to progress or continue their cycling. Similarly, cycling tours in Australia or overseas were seen as a nice experience that might be possible after participating in cycling education. Consistent with existing research (Fullagar & Pavlidis, 2012), experiencing the journey and being guided through new areas at a pace that allowed participants to take in cultural and physical elements of such settings was appealing.

Leanne told of her interest in cycling around another country, for example, and how education had made this a realistic option. “If I ever went to Vietnam that would be a way I would really like to do it so now having more confidence and fitness - that becomes a more doable option”. Penny spoke of her interest in joining a cycling tour in New York as an exciting way to explore areas of Central Park. Having participated in such a tour between interviews one and two, at her follow-up interview, Penny spoke of how much she had enjoyed the experience: “It was really, really good … I was a bit anxious about riding on the other side of the road and all that stuff but … they made it pretty safe”. Other participants spoke of their desires to ride in parts of Europe or parts of Australia as an enjoyable way to engage in new places and explore.

Women’s main interest in organised cycling structures related to realistic development opportunities in group settings. Development was conceived to be about improving skills, building confidence, better understanding basic bike mechanics, learning new routes and cycling in setting where risks were somewhat managed. Participants did not want to ride particularly quickly, set themselves an
epic mountainous challenge or beat any records. However, they saw riding with others as a positive way to meet new people, socialise and improve their riding competence.

When considering supports for and constraints on women’s participation in organised forms of cycling, women were fairly unaware of the available options. Many had heard of events such as Around the Bay in a Day, the Great Victorian Bike Ride or the Gong Ride, however initially did not know much about them. Moreover, the women were particularly unaware of club and group structures, governing bodies and possibilities regarding organised participation, yet appeared open to learning more about them. Women were particularly unaware of how cycling clubs and social cycling groups worked and the types of activities available. The following comment from Lorrain is representative of the women’s lack of knowledge, yet interest regarding their own involvement in group cycling:

I’d be open to hearing about stuff. I must say when I tootle around on the weekends in the inner city ... you see chunks of older riders going out for big day trips and I always get jealous and think that looks like such fun. So that idea of having something semi-organised I’m not against it by any means. (Lorrain)

Several participants, who heard about BUGs through education courses or otherwise, showed an interest in joining such groups. However, it was those who were older and/or had retired who joined BUG rides and ultimately decided to become members (typically as a product of time available). This was particularly useful for Amy and Jacinta. However, some other women did not see BUGs as a suitable option for their cycling needs for a raft of reasons. For example, Lauren found that such groups were not very family-oriented: “I actually wanted to join one ... to encourage my son to go on rides... [but] it sounded like it was mostly elderly people who went and they had very few families”. The majority seemed concerned with potentially not being able to keep up with such groups and needing to improve their fitness before they joined. Martine’s comments capture some of this apprehension: “I’m a bit nervous about joining a group and them expecting me to be better than I am”.

180
Rhonda, who expressed interest in joining a social riding group, spoke of similar concerns: “My fear is that it’s probably going to be populated with a lot of men that are a lot fitter than me and can manage those hills more than me ... I don’t think I am fit enough”. As discussed earlier in the chapter, pressure (often self-imposed) to keep up with others was a strong influence in different ways across all forms of cycling. This was a particular concern with respect to joining cycling groups or clubs, given that it involved meeting a new, unknown group of people who could potentially make the experience unpleasant and cause the women to feel worse about their fitness and riding ability than they already did. Such findings are supported by the contention of Fullagar and Pavlidis (2012) who suggested that the existence of an “overtly competitive masculine culture” (p. 165) might discourage women from becoming involved in organised forms of cycling.

The issues and comments discussed above further highlight the interaction between knowledge, perceptions, group options, fitness and confidence and how they collectively influence women’s participation in organised forms of cycling. Organised non-competitive cycling groups were of interest, but women interviewed were often intimidated by the prospect of them being populated with fit, Lycra-clad males, with options regarding location, pace, time of rides and demographics of groups also being considerations women discussed with respect to the likelihood of their involvement. While these women were open to the idea of community cycling events, many still referred to them as races and/or, worried that they might not be able to make the distance required.

Social support was crucial here, with participants hoping to be able to complete such events with friends or family members at a similar level and set themselves a realistic challenge, rather than setting themselves up to fail. Other practical considerations such as the cost, time and commitment associated with regular group or organised cycling were discussed, with women suggesting that they would like to have the cycling options available most weekends, with option to ride or not ride depending on their schedule. Once per month/fortnight was considered a good regularity for such rides.
The range of influences discussed to this point culminated in women interviewed feeling completely underqualified to participate in competitive cycling, with there being no functional or enjoyable benefits perceived to be associated with such participation. Recreational cycling was enjoyable, commuter cycling was convenient, group cycling was social and provided skill development opportunities and community events provided realistic challenges. Competitive cycling was in its own world, for a different kind of person to pursue, a person who was fitter, liked wearing Lycra (and looked good in it), had more time and a lot more money to spend on equipment. This person would be less fragile or likely to be injured, have a competitive nature, and want to win. The participants in the present study wanted to cycle for enjoyment, exercise and a sense of achievement, rather than setting themselves up to be ridiculed and fail.

Strong perceptions were held by participants with regard to competitive cycling. While cycling education participants may not present as an attractive target segment for competitive cycling bodies, these are women interested in riding. Cycling Australia appears to see value in cycling education programs given its role in supporting the AustCycle accreditation scheme (discussed in Chapter Three). Education participants have aspirations of improving their cycling abilities and feeling a sense of achievement through participation. Study participants’ perceptions of competitive cycling as being unattractive, intimidating and unsafe seemed to underlie a perceived ‘us-versus-them’ mentality. The everyday female, who wants to ride recreationally with friends, in organised social groups, or use their bike to get to work, perceived that they were being looked down upon by competitive, more experienced cyclists. Some support for such findings exists in reviewing the work of Garrard et al. (2006) where faster cyclists and elite athletes were perceived to be intimidating, rather than providing a source of motivation or inspiration.

This perceived lack of support from avid, competitive cyclists appears to present as an issue which needs to be addressed if the cycling for-all mentality, driven by key state and national cycling bodies, is to be achieved. Furthermore, it is likely that
competitive, confident cyclists (or former cyclists) who feel comfortable in the
world of cycling will act as advocates and make decisions on behalf of women with
respect to cycling. Several Australian cycling bodies have formed women’s
commissions or advisory groups of sorts, which is a positive step. However, it is
likely that more will need to be done to ensure that the needs and desires of
regular, non-competitive women are met, through cycling-based initiatives and
actions.

5.5 SUMMARY

Chapter Five presented a discussion with respect to socio-ecological factors that
influence women’s participation in cycling generally (across multiple forms of
cycling), and with respect to different forms of cycling. Findings were generally
consistent with previous research (Cycling Promotion Fund & Heart Foundation,
2013; Daley et al., 2007; Emond et al., 2009; Fullagar & Pavlidis, 2012; Garrard et al.,
2006). However, results further extend existing understandings to offer a more
detailed picture as to the ways in which socio-ecological factors influence
participation in different forms of cycling, with a focus on inexperienced female
cyclists.

Women saw cycling for transport as an attractive option as it could be convenient
and provide an efficient way to exercise while also offering a range of financial and
environmental benefits. However, constraints on commuter cycling were perceived
as more significant than those which were discussed with respect to self-organised
recreational cycling. Negotiating complex traffic environments, negative driving
culture, lack of social norms for transport-related cycling, difficulty determining a
safe route, bike security at the destination, weather variations, and difficult terrain
were barriers perceived to be associated with commuter cycling. As such,
recreational cycling was often more appealing to women, with almost all women
expressing interest in recreational participation (N=32).
Despite such interest, time restrictions and limited access to a safe route to access a suitable path made recreational forms of cycling also challenging for many women. Eighteen participants reported participating in recreational cycling in the months leading up to their engagement in cycling education. One reason women suggested that they participated in recreational cycling rather than commuter cycling or more organised forms of cycling was that they believed participation in recreational cycling could take place in less complex environments (e.g., cycling around a park or on a cycle path), with less pressure to cycle quickly. In contrast, eight of the 22 participants who indicated they were interested in commuting by bicycle engaged in this form of cycling prior to education participation.

It was interesting to note that while women did not express any interest in participating in competitive cycling, organised recreational cycling activities were appealing including groups, events and touring holidays. Twenty-two participants reported an interest, while only two of those interested reported having participated in such forms of cycling prior to education. The social support, risk management and personal challenge elements, when combined with opportunities to exercise and engage in an enjoyable outdoor activity, were the aspects that motivated women to participate. This was consistent with findings presented by Fullagar and Pavlidis (2012) with respect to women’s cycling event participation. However, in the present study, feelings of intimidation associated with the involvement of males and fitter participants and a general lack of confidence and awareness of program options restricted participant involvement.

It appears that different forms of cycling are influenced by a combination of socio-ecological factors in similar, yet different ways, further advancing understandings of cycling participation across different forms of cycling. Results discussed with respect to RQ1 also appear to reinforce the value of cycling education as a relevant intervention and setting through which to examine women’s cycling participation. Individual participation influences such as lack of confidence, skills and, knowledge with respect to cycling, in addition to social and physical environmental influences such as limited cycling networks, intimidation from faster cyclists, and unsupportive
infrastructure and terrain in local areas all appear to be areas that could be addressed, in part through participation in cycling education courses. It was noted earlier in the chapter that while hilly terrain and infrastructure limitations are difficult to change in the short-term, training regarding gear use, suitable route choices and the like was one way in which participant perceptions could potentially be changed to allow women to feel more comfortable in such settings. In order to determine the extent to which this occurred, Chapter Six will present results with respect to cycling education motivations (RQ2), experiences and perceived outcomes (RQ3), and will discuss additional strategies required to support women’s cycling participation in Australia (RQ4).
CHAPTER 6: CYCLING EDUCATION AND REQUIRED SUPPORT

The aim of Chapter Six is to analyse and present relevant findings with respect to participant cycling education enrolment motivations, experiences in courses and perceived outcomes. Following this, barriers that continue to constrain participants beyond education sessions are considered, with additional action required to support and encourage women’s cycling participation in Australia proposed. More specifically, the present chapter examines issues related to the following research questions:

\[ RQ \ 2: \text{Why do women enrol in cycling education?} \]

\[ RQ \ 3: \text{What perceived outcomes do female cycling education participants report in response to course participation?} \]

\[ RQ \ 4: \text{What additional strategies are required to increase women’s participation in different forms of cycling?} \]

The discussion commences by considering motivations for women’s enrolment in cycling education courses, with course expectations subsequently being examined.

6.1 MOTIVATIONS, DESIRED OUTCOMES AND EXPECTATIONS

Motivations for education enrolment generally revolved around three direct desired outcomes: skill improvement, increased knowledge and increased confidence. Given the significance of individual barriers outlined in Chapter Five, it was unsurprising to find that in the present study, women saw enrolment in cycling education as a way they could overcome such barriers. Also, similar individual barriers to women’s cycling participation have been identified and discussed in previous research (Cycling Promotion Fund & Heart Foundation, 2013; Daley et al., 2007; Garrard et al., 2006), thus further making a case for individual factors as motivators of women’s enrolment decisions. Table 6.1 summarises the specific
aspects of skill, knowledge and confidence women sought through participating in specific levels of cycling education.

Table 6.1: Motivations for Education Enrolment - Level Specific Responses

<table>
<thead>
<tr>
<th>Learn-to-Ride/Introductory</th>
<th>Basic Skills</th>
<th>On-Road Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increase confidence</td>
<td>• Increase confidence</td>
<td>• Increase confidence</td>
</tr>
<tr>
<td>• Learn a skill that is perceived as the norm for others</td>
<td>• Increase skills (mounting, dismounting, braking, steering, changing gears)</td>
<td>• Reinforce basic skills</td>
</tr>
<tr>
<td>• Learn to balance on the bike and feel safe</td>
<td>• Learn techniques for handling low-traffic environments</td>
<td>• Learn how to be a cyclist on the road</td>
</tr>
<tr>
<td>• Learn to manoeuvre the bike safely</td>
<td></td>
<td>• Understand rights, rules, techniques and risk management on the road</td>
</tr>
<tr>
<td>• Feel comfortable riding with other people around</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

While the principles remained the same (to increase skills, knowledge and ultimately confidence/self-efficacy), the types of skills and knowledge women wanted to develop typically became more complex as they progressed through education levels. For the purposes of this discussion, enrolment motivations and desired outcomes will be considered collectively, however, the key factors sought by participants in each course level are summarised below (Table 6.1). Participants also discussed a series of more indirect outcomes they wished to experience through education participation as facilitated by increased levels of skill, knowledge and confidence. Many of these women ultimately wanted to expand their cycling participation opportunities, increase cycling enjoyment and manage risks associated with cycling. Such desired outcomes will be discussed further as the present chapter progresses.

As discussed in Chapter Five, the lack of confidence reported by women in the present study was often related to complex bicycle technology, cycling environments that were perceived to be challenging and dangerous, poor levels of fitness, pressure from faster cyclists and drivers, and poor skills (amongst other things). Women were particularly aware of the risks associated with cycling, as discussed in the literature (Cycling Promotion Fund & Heart Foundation, 2013; Dill &
Gliebe, 2008; Emond et al., 2009; Garrard et al., 2006; Garrard et al., 2012; Garrard et al., 2008), and no longer benefitted from the fearless attitude they experienced as children, as highlighted by Karen’s comments: “When you’re young [you are] footloose and fancy free and [have] no fear. It’s a bit different when you get older. You become more sensible and I thought what happens if I do get a flat tyre”? Women typically saw cycling education as a way they can develop their cycling skills and knowledge, in a supportive environment, to facilitate an increase in confidence. From the viewpoint of participants, education helps prepare women to handle more complex environmental conditions, and assists them to avoid injury or feelings of intimidation and inferiority rooted in their lack of skills and knowledge.

Telfer et al. (2006) evaluated a pilot cycling proficiency training program in Sydney. While the authors suggested that they collected data with respect to the reasons participants enrolled in cycling education courses, they did not report on such findings, with the result that comparisons could not be drawn. In the qualitative component of a study conducted by Garrard et al. (2006), cycling education was one of a number of programs through which participants were recruited for focus group discussions. Female participants were asked to discuss what motivated, supported and constrained their participation in cycling, and what program features were particularly valuable. Novice participants suggested poor cycling skills and low self-efficacy prior to participation in courses were reasons why programs were attractive to them.

Confidence and self-efficacy as motivations are worthy of consideration in the context of education. Why is it that women interviewed saw education courses as an appropriate approach to building confidence? When reflecting on the principles of self-efficacy discussed in Chapter Five, expectations of personal self-efficacy were suggested to be influenced by four major information sources. These included enactive mastery experience or past performance accomplishments, vicarious experiences or social modelling, social or verbal persuasion and physiological states or arousal (Bandura, 1977a, 1997). When considering motivations for participation in cycling education, potential opportunities for women to receive encouragement,
engage with relevant role models, compare their performance with others and, ultimately, successfully perform the task (cycling) effectively with guidance, were all perceived to be important in the context of building confidence.

Prior to education, women suggested they did not feel comfortable engaging in key actions associated with safe cycling such as taking their hands off to signal a turn, head-checking, or braking safely. Several participants did not feel comfortable cycling near other people or cars while their level of skill, knowledge and confidence remained poor. Comments in Table 6.2 highlight the degree to which confidence was sought through education and the entwined nature of skills, knowledge and confidence as discussed by participants.

Table 6.2: Motivations for Education - Comments Regarding Confidence

<table>
<thead>
<tr>
<th>Participant</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miranda</td>
<td>I just want to be able to get on my bike and feel like I’m in reasonable control.</td>
</tr>
<tr>
<td>Mindy</td>
<td>Some skill reminders and I guess it’s confidence that I remember how to ride a bike and that I’m capable of doing that. I just needed to be reminded … in a safe environment.</td>
</tr>
<tr>
<td>Leanne</td>
<td>I can’t change how the traffic reacts and idiot drivers but at least [I can] hope to have more confidence about what I’m doing and that I have a trick bag of things I can do to make myself safer both proactively and also reactively in those situations.</td>
</tr>
<tr>
<td>Caitlyn</td>
<td>I thought the way it was described was absolutely perfect for what I wanted and the situation I was in … Just practical skills. I didn’t know how to properly get on and off the bike!</td>
</tr>
<tr>
<td>Alana</td>
<td>I thought that’s a great opportunity that I could learn the basics and get it all down pat and then build up my confidence to cycle a bit more… I just wanted a bit more confidence especially with the mounting and dismounting… [and] I wasn’t too confident about turning either.</td>
</tr>
<tr>
<td>Sarah</td>
<td>My daughter and her husband bought me a bike so I rode it about maybe half a dozen times and then I popped it in the shed and there it stayed. It was simply lack of confidence … I didn’t know how to go about learning how to ride it … I really enjoyed the riding on the bike paths but the confidence in turning corners and … basic things like stopping and setting off so that was my big thing … I wanted to know how to do those things without falling off.</td>
</tr>
</tbody>
</table>
While all women interviewed sought to improve their skills, increase their confidence in some capacity, and enhance their ability to manage low traffic environments, women who participated in on-road courses (N=10) particularly wanted to know how to behave as a cyclist, rather than as motorist on the road. How should one manage intersections, and cycle near traffic safely? Even women, who at the point of enrolment did not want to ride on roads, were interested in finding out how to best become a cyclist on the road, just in case they encountered traffic while riding. This appeared to have been driven largely by women’s interest in the indirect outcomes of education related to risk management.

Andrea discussed her interest in education as a way to become a safer cyclist. She explained how she wanted to gain “more confidence on the road, knowledge of the road rules for riding on the road, things like giving way and more practice with signalling”.Jacinta spoke about her desire to participate in education as being “driven by a sense of responsibility” where she felt that unless she knew how to safely cycle and negotiate the roads, she should not be riding near traffic or other cyclists. This participant felt that cycling education would help her to become a more competent, safer cyclist, rather than a confused and hesitant one. Marie, who had been cycling for some time, also wanted to be safer and more confident near traffic as highlighted by these comments: “Just to feel more confident... on the road and I suppose to know how to ride in traffic”. Two regular commuter cyclists also discussed motivation for enrolling in education in relation to road safety, confidence and skills.

I hadn’t ridden on the road before ... going into the CBD I thought I need to understand what my rights are, if I’m doing the right thing or not ... what happens if I do ride on a footpath, is that legal or illegal? On the road, am I in the way of a car or do I have the rights that I believe I have? (Karen)

I was uncertain about the rules, the behaviour of the cyclist in relation to the traffic and what I’m supposed ... [I was] hesitant as to where should I place myself especially with things like traffic lights and sitting waiting in traffic. Sometimes indecision happens and you get all muddled and then you almost fall off the bike because you’ve come to the stop light and you still can’t quite
decide what you’re doing and so you aren’t prepared to stop and your brain is still trying to process where you should be. (Peta)

While these women had been able to commute to work by bicycle for a period of months, they explained their hesitation with regard to their rights on the road, and sensible approaches to cycling. These comments seem to highlight the perceived complexities associated with cycling in traffic. Cycling education was seen as an opportunity to learn the right way to cycle on the road, rather than being forced to try and mimic the actions of others or attempt to work out the best approach to take on their own. Women needed reassurance that they were doing the right thing in many cases, and they saw education as a method to achieve this validation or confirmation.

Learning to cycle safely near traffic was a motivator for cycling education enrolment, linked to building confidence and managing risks. In the minds of participants, if they were doing the right thing and behaving safely as cyclists, while choosing appropriate cycling routes, the opportunity for problems to occur would be reduced. In a similar vein, participants suggested they did not know how to maintain their own bikes, and in most cases, husbands, boyfriends, or friends were instrumental in helping women purchase and maintain their bikes (as discussed in Chapter Five).

Participants sought opportunities to learn more about how they could maintain their bikes themselves, with the goal of risk management also in mind. Tasks such as putting a chain back on the bike after it had slipped off, removing the front wheel from their bike to put it in the car, cleaning grease off the chain and changing a flat tyre were noted as skill deficiencies that many women sought to overcome through education. Karen spoke of an issue she had experienced with her bike which had a greasy chain that was leaving marks on her clothes: “I really wanted a solution for that but I didn’t know what to do ... I could pay for someone to do this but ... I don’t want to treat the bike as something that you give to someone else”.

191
This participant, along with other women, wanted to take ownership of her bike as much as possible, and felt cycling education could assist her with this by teaching basic maintenance skills or otherwise connecting her to people who could help. Penny spoke of her desire to better understand how to check her bike for mechanical issues: “just being aware of the bike and what procedures you should check on the tyres and the brakes and the chain and all that stuff before you jump on”. Sarah discussed previously not knowing what to do when the chain came off her bike or when other basic things went wrong as key reasons for enrolling in education.

In addition to maintenance, gears were considered to be particularly complicated by participants. Education was seen as a way to increase skills and knowledge in this area. Amy’s comments highlight such sources of motivation: “I wanted to learn how to change gears properly. That was one big thing ... I just wanted to have a greater understanding of how to use the bike efficiently and safely”. Participants also often noted that friends and family members had not been able to effectively teach them to use gears in previous attempts. In the context of knowledge and skill development, gearing was a major area women sought to improve through education.

Participants who learnt to ride for the first time through education spoke of motivations associated with learning a skill they had not previously been able to master. Those who enrolled in introductory programs (N=4) had not cycled confidently (or in most cases, at all) as children. Jodie explained that while she grew up in Sydney, her parents did not know how to cycle so did not teach her to ride, nor did they emphasise the need for her to develop this skill as a child. This participant thought that education would help her learn a skill (cycling) she thought was important and spoke of the value of education in teaching her how to cycle correctly:

I think it would be just nice to be able to ride a bike ... I think it’s a basic skill like driving that everyone should have but ... I didn’t learn when I was growing up ... I wanted to learn to cycle with the
correct technique and so forth ... I could always buy a bike and figure it out myself but I think that would take a lot longer. I might pick up some bad habits because I think it’s like with driving you can get someone to show you but usually people will show you all the bad things they’ve picked up. So initially you get in touch with someone who does things the right way. (Jodie)

Lynne also spoke of wanting to ride a bike but never having learned: “It was one of the things I’ve always wanted to do but as an adult you sort of think there’s no way I’m going to learn. You think it’s going to be so hard”. This participant enrolled in cycling education after she was invited to participate in an overseas cycling tour with friends and decided she would give it a go. While for Carla, enrolling in cycling education was a way for her to support her husband’s interest in cycling:

Our youngest has turned 18 now and ... my husband and I can get more time to spend together ... Now most weekends we can pretty much do what we want to do ... The way he got me to do it, he did all the research, he said I really, really want us to ride bikes and I said you’ve got to do the research, find a way that I’m going to be able to ride a bike so he did it all. He went out and bought bikes ... and he found [the instructor]. (Carla)

A more complex example was observed in Millie’s cycling education participation motivations. This participant had not previously been able to learn to cycle as a result of disability. Now that her conditions were better managed, she spoke of her motivation to enrol in cycling education as an adult to find out if she could cycle and perhaps engage in some new activities:

I guess the first thing is I wanted to know was if I could. The second thing is I was interested in cycling to commute. The third thing is I’ve got this half-crazy idea ... There’s a group called Disability Sport and Recreation and the last year they did a fundraising cycle tour to Vietnam ... It looks like they’re planning to make it an annual thing and it did actually look like a bit of fun. (Millie)

Cycling education appeared to provide Millie with an opportunity to acquire a skill she had not previously been in a position to learn. While the outcomes for this participant will be discussed later in the chapter, it is worth noting that learning to ride was something that gave this participant a great sense of pride and
achievement and ignited a new passion in her life. This participant suggested that cycling education was the only way she would have been able to learn to ride. In most cases, women who enrolled in introductory, learn-to-ride programs had often felt their inability to cycle was a deficiency that they longed to overcome. They saw cycling education programs as an effective way to help them achieve a personal goal.

Cycling education participants interviewed generally wanted an opportunity to learn more about cycling, in a safe, supported environment where they could ask questions they had otherwise been apprehensive to ask for fear of looking foolish. In Chapter Five it was discussed that women perceived there to be a secret cycling language or code which they did not understand. A great deal of cycling knowledge seemed to be implied, particularly when these women entered bike stores. Lorrain spoke about how she saw education as an opportunity to demystify the world of cycling through education participation. Women sought a supportive environment in which they could ask ‘stupid questions’ like how to clean the chain, how much to pump up their tyres, and what cycling equipment they needed. Garrard et al. (2006) also found that women valued opportunities to ask “stupid questions” when participating in different programs designed to support women’s cycling participation (p. 23).

Motivations related to cycling education enrolment have been summarised in Figure 6.1. It seemed that participants enrolled in cycling education courses in an effort to develop a range of skills and increase their cycling knowledge in supportive environments. Participants hoped or presumed that increases to their level of skill and knowledge would positively impact their level of confidence in a number of respects. Through these positive changes, the ultimate indirect desired outcomes related to reducing the level of risk associated with cycling, increasing enjoyment of the activity and opening up new opportunities to cycle in different capacities (such as commuting, riding with organised groups, or, more skilled friends).
In addition to examining motivations and desired outcomes, women’s expectations from cycling education were also explored in interviews to gain an idea as to whether participant expectations were met through their experiences. While most women interviewed had a clear vision regarding the outcomes they wanted and the reasons they had enrolled, participants typically reported being unsure regarding what to expect from cycling education courses or how such goals would be achieved through training. Maxine’s comments represent typical responses from participants: “I had absolutely no idea, absolutely no idea. I was quite excited by the idea of learning something and getting to a point where I could be better at how I was approaching it”. Sarah had equally little idea, and also discussed her hope that education activities would be of assistance: “I didn’t really know … I wanted just to be able to do some things to have more confidence … so I really didn’t know”.

These comments seem to highlight participants’ interest in learning anything and everything possible to help make cycling seem easier and more achievable. This appeared to be linked to their previous negative cycling experiences and in some cases, a sense of hopelessness that they would never be able to cycle in the way they desired. Despite this desire, they were unsure as to how sessions would operate and what instructors would cover meaning they had outcome expectations, however process expectations were limited.
As an early component of the study, pilot interviews were conducted with five women who were attempting to increase their participation in cycling. These participants were asked to discuss their interest in participating in cycling education courses. Responses indicated that generally, these women were unsure of the purpose of education, its target participants, or, activities that might be included in education courses. Despite pilot participants discussing their own lack of confidence in a range of areas, education was not something they generally saw as being appropriate for their level (until the components and focuses of education were explained). Pilot interview participants also had no idea where they would find such courses, beyond generic internet searches.

Nine of the 33 study participants interviewed reported attending the session with another participant. In each of these cases, there seemed to be one participant who generally appeared more confident, who was leading and encouraging other/s to participate. A few participants explained that finding an education course was not necessarily an easy task. Lisa commented: “I did a search of bike courses and got on to Bicycle Victoria and then [the community] neighbourhood house so it took a bit of work”. In some cases, people had to travel quite a distance to attend courses as they had not been able to locate a more local option, as discussed by Carla: “It was a long way and it would have been better for us if there was one closer” (Carla). Generally local programs were favoured by participants.

Community resources, internet searches and word-of-mouth recommendations were the main ways participants found out about education programs. In some cases, a program was specifically sought as a remedy for their situation. However, in other cases, seeing an advertisement or learning about the program through promotional material or word-of-mouth communication triggered women’s interest in participating. As such, motivations for enrolling in education were in some cases, stimulated by finding out that programs were available. Having examined motivations, expectations and sources of information, the following section considers participant responses with respect to RQ3 and as such, perceived outcomes associated with cycling education participation.
6.2 EXPERIENCES IN COURSES AND IMPORTANT COURSE FEATURES

The present section focuses on women’s experiences in cycling education courses. As such, determining whether participants’ expectations were met and desired outcomes achieved are major focal points of the present section, specifically examining desired cycling outcomes and comparing these with reported cycling outcomes. Given that very limited expectations were communicated, the major focus is on experiences and outcomes.

Table 6.3 summarises course features that were reported as being particularly important by women enrolled in different levels of education. Across all levels, the opportunity to learn how to safely execute basic skills appeared to be very important to participants. Women valued skill development opportunities, individualised feedback, controlled practice settings, opportunities to learn in their local area (facilitated by council support), safe/controlled learning environments and the fact that other participants were generally at a similar level to them. These were all important course features which assisted women in their development. Such findings will now be discussed in further depth.

Table 6.3: Important Course Features - Level Specific

<table>
<thead>
<tr>
<th>Learn-to-Ride/ Introductory</th>
<th>Basic Skills</th>
<th>On-Road Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The process: had never been through the steps before</td>
<td>• Safety check (how bike works and what to check)</td>
<td>• Mounting/dismounting safely</td>
</tr>
<tr>
<td>• Balancing on the bike</td>
<td>• Mounting/dismounting safely (very important)</td>
<td>• Using gears</td>
</tr>
<tr>
<td>• Understanding basic handling techniques (particularly stopping and starting)</td>
<td>• Using gears</td>
<td>• Rights on the road (where should I be, what is safe?)</td>
</tr>
<tr>
<td>• Sense of achievement/ empowerment at learning to ride</td>
<td>• Taking one hand off the handlebars</td>
<td>• Skills to handle complex intersections</td>
</tr>
<tr>
<td></td>
<td>• Head-checking</td>
<td>• Role model (instructors as commuters)</td>
</tr>
<tr>
<td></td>
<td>• Having an opportunity to ask ‘stupid questions’ - answered by a professional</td>
<td>• Increased confidence handling the bike, negotiating traffic etc.</td>
</tr>
</tbody>
</table>
A number of women spoke of their previous attempts to improve their cycling proficiency and level of confidence. Several asked friends, husbands, or family members for assistance, and while these people provided instructions and in some cases demonstrations, they were unable to give individualised feedback related to correcting technique and postural issues. This aspect of education seemed to be particularly valued by participants in the learn-to-ride groups where women were just starting out on their bikes. Carla spoke of the feedback she received regarding her posture on the bike: “There were a couple of times when she said something and it was like one of those light bulb things ... about my posture and ... no-one else had been able to explain it to me properly”.

Several other participants could articulate the specific aspects of feedback they valued through education. Andrea focused on feedback related to foot positioning: “My foot would sometimes hit the tyre when I’m turning and he was saying that I should bring my foot back on the pedal so that the balls of my feet are on the pedal”. While Jodie spoke generally of the value of individualised feedback: “[The instructor] picks up on the specific things I’m doing ... and she’s very good at tailoring the approach ... if something’s not working she’ll suggest something else ... You don’t get that feedback obviously from reading something online or in a book”. Feedback seemed to be an important course feature discussed by women.

For those participants who enrolled in local programs close to their houses, having an opportunity to learn to cycle in their local area was important. Those who had to travel outside council boundaries to get to courses were willing to do so for the benefit of the experience, however would have preferred to see the course run in their local area. This is consistent with findings presented by Garrard et al. (2006) where women preferred to participate in courses in their local area. Participants in the present study often saw their local council’s support for cycling education courses through funding and promotional efforts as a positive reflection on government community service interests. Women felt that as rate payers and/or residents, it was nice to have been offered an opportunity to participate in a course subsidised, in part or in full, by their council. Miranda’s comments highlight the
value women discussed associated with local participation from a convenience perspective:

I liked the fact of it being local ... there is also the issue of how to get the bike somewhere, transporting the bike. I haven't got a tow bar and I couldn't throw it in the back of my car ... I only want to ride around here. (Miranda)

Similar to findings presented by Garrard et al. (2006), participants generally emphasised the importance of being provided with opportunities to improve their skills in safe, supportive environments. As discussed in Chapter Five, women generally perceived cycling environments to be complex and unsupportive when attempting to improve their cycling skills. As such, the supportive, controlled nature of education was suggested as particularly reassuring. Leanne discussed such issues and particularly emphasised the value of safe environments in supporting her endeavours to become a more competent and confident cyclist:

Being able to practice in a ‘safe’ space in the schoolyard where you could actually try out a technique but then equally I would say going on to the road and then having to implement it. I think it wouldn’t have been the same if I’d just done the school stuff and not done the road stuff and I was obviously a lot more comfortable with the road stuff having been through it a few times in the school first and being able to get my head around it without having to worry about getting squashed. (Leanne)

Within the context of this learning environment, perceived to be safe and secure, participants discussed the aspects of courses they valued most. Table 6.4 provides a sample of comments that highlight the types of skills learned in courses that women found particularly valuable. For participants across all levels of education, being taught to perform a bike safety check, safely mount and dismount the bike, start and stop, use hand signals, perform head checks and basic maintenance related actions, were valued course aspects.
<table>
<thead>
<tr>
<th>Participant</th>
<th>Skill or knowledge aspect</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacquie</td>
<td>Safety check (and general knowledge)</td>
<td>Talking about the bike, the ABC part, the brakes, the air and what to check for and the helmet. The fitting of the helmet I didn’t know about it and the bike chain cleaning and maintenance and the gears but more around getting familiar with the bike and how to use it, I think that was more important to me.</td>
</tr>
<tr>
<td>Andrea</td>
<td>Mounting/dismounting</td>
<td>Mounting and dismounting was one thing that was very valuable … it was good to learn how to do it properly I guess.</td>
</tr>
<tr>
<td>Miranda</td>
<td>Starting and stopping</td>
<td>Something as simple as standing with the bike and the position to start off with and just being ready to push down. I don’t think I’d really thought of it. And probably stopping suddenly and not feeling like I wasn’t going to end up in a mangled heap on the ground… Just trying to cycle in a straight line was really challenging and also taking my hands off the handlebar, trying to relax.</td>
</tr>
<tr>
<td>Mel</td>
<td>Road riding skills</td>
<td>From that course I still remember the moment when we were riding along… and the instructor yelled at everyone, there was a range of abilities in that group, and he just said right everyone we’ve got to go into the middle lane because we’ve got to go across, we’re turning right and he said stick as a group and he just pretty much coerced everyone to be really bold on the road … from that moment on it instilled great confidence in asserting my place on the road … I don’t think I ever would have thought that it would be a safe thing to do if I hadn’t done it with the instructor and that group of people that day.</td>
</tr>
<tr>
<td>Karen</td>
<td>Road riding skills</td>
<td>The hook turn, that was priceless. I didn’t realise that was an option for every set of traffic lights. Its common sense but I just didn’t think of it.</td>
</tr>
<tr>
<td>Leanne</td>
<td>Maintenance</td>
<td>One of the things I found really useful about the course was also the bike maintenance side of things, oiling your chain and things like that so I thought that was also very good because owning a bike does not necessarily mean you know how to take care of it and that was very helpful.</td>
</tr>
<tr>
<td>Caitlyn</td>
<td>Bike functionality</td>
<td>I think I’ll be more confident because I can take the front wheel of my bike off so I’d be confident taking the wheel off and putting it in the car … The thing about the course that was really good was it wasn’t theoretical, it was practical.</td>
</tr>
</tbody>
</table>
On-road participants explained that they particularly appreciated having an opportunity to ride on the road and learn to deal with traffic and manage a range of types of road situations such as roundabouts and right-hand turns while supported by an instructor. These women suggested that having an opportunity to learn about and practice techniques such as hook turns provided them with confidence to try to execute these on their own, as opposed to hypothetically learning about it in an off-road environment. This is consistent with findings presented by Garrard et al. (2006) where women suggested that practical elements (opportunities to practice skills, rather than learn theoretically), were particularly important to participants. “Actually cycling on the roads helped women learn the more subtle, nuanced behaviours and real-life decision-making required to feel comfortable and safe cycling in traffic.” (p. 23)

In addition to opportunities to learn the aforementioned skills, what emerged as a particularly dominant theme was participants’ tendency to compare their skill level with that of other course attendees. Many took particular comfort in realising they were not the only ones struggling to ride a bicycle. Given that one barrier to cycling participation discussed in Chapter Five was women’s concern regarding trying to keep up with other cyclists, it was not surprising that women were relieved to find that other course participants were at a similar level. In groups where participants were not as well matched (one basic skills group of five participants in particular), women suggested this somewhat detracted from their experience, as they felt they could have been challenged further while other participants were struggling to cycle without falling off. Table 6.5 includes a selection of comments which demonstrate the depth to which this phenomenon penetrated the thoughts of participants.
Table 6.5: Skill Level Comparisons

<table>
<thead>
<tr>
<th>Participant</th>
<th>Experience</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miranda</td>
<td>+</td>
<td>It was also reassuring to me that everyone was about the same. I wasn’t looking like the person who couldn’t do it ... the dummy in the class ... I said to my daughter we were all very similar abilities so that made it easier for all of us.</td>
</tr>
<tr>
<td>Kate</td>
<td>+</td>
<td>I really enjoyed the camaraderie with the other ladies there and it made me feel better that there are other people at a similar skill level and other people that also felt a bit nervous, that was really encouraging.</td>
</tr>
<tr>
<td>Lorrain</td>
<td>+</td>
<td>The other thing that was really great about the course was the fact that no-one else who turned up seemed massively confident ... I didn’t feel like the odd one out and that was really good. I seriously thought I’d have to go home after an hour because I was so rubbish compared to everybody else. I didn’t think I could take my hand off the handlebars. Nobody felt too inadequate and people did get confirmed and did get a little bit pushed out of their comfort zone but in a way that was completely manageable and nobody felt the dummy and people felt empowered. It doesn’t get much better than that.</td>
</tr>
<tr>
<td>Lynne</td>
<td>+</td>
<td>There was another lady that kept falling over as often as I did and it’s a nice thing to be among people that are similar ... the way it was designed didn’t make anyone feel inadequate.</td>
</tr>
<tr>
<td>Caitlyn</td>
<td>+</td>
<td>That’s really, really important because if you go to something and you’re the worst there and you know you’re the worst there and it’s not being taught at your level, it’s just pointless going ... I wanted to be in a class with people more of my situation so that’s what appealed.</td>
</tr>
<tr>
<td>Lauren</td>
<td>-</td>
<td>I think it was a difficult course to run when you’ve got a number of different people at different skill levels.</td>
</tr>
<tr>
<td>Rhonda</td>
<td>-</td>
<td>Realising how many people couldn’t ride a bike ... I felt a bit awkward because I was always trying not win all the races. I didn’t want to feel like a show-off.</td>
</tr>
</tbody>
</table>
With respect to participants feeling reassured that others were at a similar standard to them, this was considered to be a vital element in women feeling comfortable in a safe, supportive learning environment. In previous research, it was suggested that women appreciated opportunities to cycle with other women and in a group, where they were more willing to try things they would otherwise have avoided (such as riding on the road) (Garrard et al., 2006). In the present study, most women spoke in some way about the positive impact of supportive learning environments. Lorrain explained: “I felt like I had an opportunity to experiment a lot more in a safe environment ... and start to really understand the gearing a lot more”. This appeared to link to women’s negative appraisals of local cycling environments generally, and findings reported by Daley et al. (2007), where women suggested they felt there was nowhere safe they could ride. Fullagar and Pavlidis (2012) also found women appreciated being able to cycle in event environments that were perceived to be safe and supportive where risks were managed by organisers. Education courses gave women interviewed an opportunity to develop skills in environments perceived to be safe, where risks were considered and managed by professionals.

One course element that women had fairly mixed opinions about was the games that were played, particularly in the Melbourne basic skills courses. Typically, games which aimed to test different skills that had been taught in sessions were included by the course instructors. Such games required participants to maintain balance while cycling slowly, or safely mount, cycle and dismount their bike in a race-style activity. Course instructors explained to the researcher that such games were used to encourage participants to translate the skills participants learned into automatic processes. While some women found the games enjoyable, suggesting that they were a highlight, others felt that in an adult learning environment, such activities were not needed to sustain participant attention. The following comments highlight the divide in opinions expressed by participants:

I liked that he had games to play so it wasn’t just straight do this and do that. It made it fun and with the games it was competitive
so you had to do stuff quickly and so that meant you had less time to think about what you were doing and if you forced yourself to go faster you could be more confident later on that you were able to do those skills. (Alana)

I suppose the games were meant to be fun or something but this is a very personal point of view … but as an adult I don’t really need to play a game … I mean I wouldn’t have signed up if I didn’t have patience to listen to what needs to be told and practice those particular skills. (Lauren)

This discussion sought to highlight a range of course features participants valued from their education experiences. These women appreciated having opportunities to improve on their skills and receive individualised feedback in a safe, supportive environment with participants who were equally as apprehensive about cycling as they were, all supported by local councils. A large part of what women valued about their education experiences was the support and advice provided by course instructors. As such, participant perceptions of course instructors will now be considered in further depth.

6.2.1 Course Providers and Teachers

Education courses in Melbourne and Sydney were operated by four different cycling education instructors. Two female instructors were AustCycle providers (see Chapter Three), while two instructors were teachers who were employed by these providers. As such, participant appraisals of cycling education instructors and course experiences were based on courses provided by more than one instructor. In the case of introductory/learn-to-ride, and on-road courses, individual participants were often taught by more than one instructor, meaning that a number of individuals were exposed to teaching from numerous instructors. While the study did not seek to achieve generalisability, this methodological dimension allowed for a more rich set of data to be examined within the context of the case study. Table 6.6 summarises the distribution of participant exposure to education instructors.
Table 6.6: Participant Exposure to Education Instructors

<table>
<thead>
<tr>
<th></th>
<th>Melbourne</th>
<th></th>
<th>Sydney</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>participants taught</td>
<td>Female (P)</td>
<td>Male (T)</td>
<td>Female (P)</td>
</tr>
<tr>
<td>by instructor*</td>
<td>15</td>
<td>17</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: P = Provider; T = Teacher

*Some classes required more than one instructor; some participants completed more than one level of training.

Women were asked to comment on their perceptions of course instructors with respect to content delivery, instruction style and other dimensions they perceived to be of relevance. Overall, participants were highly satisfied with the quality of teaching they received, generally having comments ranging from somewhat positive to extremely positive. Key aspects that participants appreciated about the instructors were their level of knowledge, ability to transfer such knowledge in an easy-to-follow manner, the safe and friendly environment they helped to create, their openness and willingness to answer questions, and the fact that comments and actions of trainers made participants feel like cycling was an achievable goal.

Instructor knowledge was valued by participants. The ability of instructors to transfer such knowledge effectively was what women spoke of most highly. Amy went through basic skills training and had enrolled in the next level of education by the time of her follow-up interview. She praised the instructor’s ability to transfer knowledge: “I thought [the instructor] was the perfect person. She has ability to teach, she’s clear, she’s fair, everybody got her attention equally. I just thought she was magic”. Lynne, an absolute beginner who later progressed to the basic skills level, also explained how the instructor’s ability to teach helped her achieve cycling goals:

> It’s one thing to be a great cyclist, but if you haven’t got the ability to pitch that in a basic way ... I found it all very positive and the fact that I managed to do 10 miles off of a handful of lessons, not really having done anything on my own, to me is a testament to how good the training was. (Lynne)

Miranda spoke of her experiences learning from a male instructor in Melbourne. She noted that based on appearances alone, she could have been intimidated to
learn from a young, fit, capable male cyclist. Yet the way the instructor handled the course made it a very positive experience for her:

I thought he did a terrific job considering here’s this male who’s young and fit and obviously can ride really well and a situation where he could think I’m hopeless at this but the way he approached it I felt like he knew what he was talking about and [what] he was teaching us. He wasn’t being patronising at all and I thought he did a terrific job. (Miranda)

The supportive, unintimidating nature of the learning environments created by instructors was valued by participants. During session observations it appeared that many women were somewhat apprehensive at the beginning of lessons. The way instructors ran courses, by starting with introductions and very basic instructions regarding bike safety checks, seemed to help reduce the sense of apprehension and feelings of inadequacy experienced by participants. When first arriving at courses, women appeared to feel as though they should already know how to check the pressure in their tyres, fit a helmet correctly and generally understand how their bikes worked. Yet these were early course focal points and when participants saw that others also did not know how to do these things they seemed to feel more at ease and comfortable with the learning environment. Encouragement and support offered by education instructors were frequently discussed as instructor attributes that were important to participants. Comments made by Lisa and Mindy summarise this concept of feeling at ease in response to instructor style:

They were patient and just very encouraging ... I think it was particularly the course they ran and just how lovely they were and they weren’t your typical, I was worried they were going to be these Cadel Evens wannabes but they weren’t like that at all. (Lisa)

[We] gain[ed] confidence on the bike in a safe environment with understanding people. I thought that she did really well. She was very calm and very confident in herself which translated to everybody ... I certainly felt calmer and more in control in the way she developed the skills. (Mindy)

Women spoke of the passion showed by instructors and discussed the value of engaging with a passionate educator when learning to cycle: “[The instructor’s] got
a lot of passion and that’s very important” (Jodie). They also suggested that the commitment and passion shown by instructors made them good role models and provided women with a sense of aspiration in some cases. Some participants noted that they saw different cycling activities, such as commuting, as becoming more realistic and achievable for them, having spoken with their instructors seen them using their bikes to commute.

Two participants who had both recently started cycling to work spoke of different male instructors’ participation in commuter cycling as being a good example for them to follow. Jacquie stated: “Because he mentioned that he rides the bike everywhere that sort of gives me an incentive to do more with my bike as well. Maybe one day I might ... use my bike more rather than driving everywhere”. While Karen remarked of a different instructor: “[He] had all his tools and equipment and ... the lifestyle they’ve adopted now being bike lovers and riding bikes all the time, it was a good example”. Instructors were often seen as realistic role models, that is, participants thought if the instructors can do it, perhaps they could too. Garrard et al. (2006) and Fullagar and Pavlidis (2012) both discussed the important role of realistic role models, particularly females, in encouraging women to cycle. In the present study, participants suggested that both male and female instructors set a positive, achievable example for them to follow.

Women interviewed also spoke of the way instructors taught them some specific skills. In many cases, women had been told or shown by others how to perform cycling-related skills, however participants reported that it had never really ‘clicked’ for them. These skills typically revolved around changing gears, mounting and dismounting the bike, cornering and braking. Sarah spoke of one such moment related to learning to ride up hills and use gears effectively: “What he said was that when you’re going uphill it’s like a manual car and no-one had ever said that and it just made so much sense”. Only a very small number of comments were anything other than extremely positive with respect to instructor approach and effectiveness. Andrea suggested that her instructor “wasn’t the warmest person but he gave really good instructions”. While Lauren explained that she thought having
an additional instructor (rather than just one), might have improved her learning experience: “the instructor was friendly enough and all that. I think it was a difficult course to run ... one person can’t watch all of those people”.

While Andrea felt that the instructor was not overly warm, one other participant provided a very positive appraisal with respect to the same instructor’s demeanour and approach to teaching. Martine’s experiences in particular stood out as a testament to his abilities. This woman was the oldest education participant interviewed and while she initially did not feel she needed education as she had always been a proficient cyclist, after a break of close to 20 years, she thought it might be a good idea to attend the course to refresh her skills. Martine’s first experience back on her bike after this long break took place at the education course. She made the following comments regarding the support she received from the instructor:

That was awful, I wanted to come home. I thought no, I don’t like this, obviously I’m too old to do it, obviously I’ve got old and wobbly and I can’t do it. But anyway I just stayed because [the instructor] was just so good and so patient and he knew the things to tell me to do ... he kept on saying keep pedalling, keep pedalling ... it’s pedalling that keeps you balanced, so when he said that I thought okay, I’ll keep pedalling then ... He was a very good teacher, a very kind and good teacher I think. (Martine)

Martine went on to finish the session and left feeling as though she would be able to cycle more safely in the future, if she so desired. Overall, quality of instructors was an important education aspect for women. Several participants suggested that if they needed further assistance or had cycling-related questions they would feel comfortable approaching the instructors to seek further support. This was a testament to the manner in which they conducted sessions and the safe and supportive environment instructors created.

6.3 PARTICIPANT OUTCOMES: PERCEPTIONS

The present section examines perceived cycling education outcomes as discussed by women. In this regard, the term ‘outcome’ refers to changes women reported in
relation to cycling perceptions, participation experiences and behaviours, directly post participation and/or at follow-up. Women’s desired outcomes were discussed earlier in the chapter and perceived realised outcomes generally mirrored desired outcomes. This section will further examine why such outcomes were or were not realised, thus reflecting further on the role of different socio-ecological influences.

Figure 6.2 summarises direct outcomes women suggested they received as a product of education participation. It seemed that through the provision of safe, supportive learning environments that women’s skills, knowledge and confidence were improved. As noted earlier, women appreciated feedback and encouragement provided by instructors and other participants. They felt comfortable in the controlled environments provided, where risks had been considered and managed by professionals, and ultimately, they benefitted from opportunities to practice cycling and refine skills in such supportive environments.

**Figure 6.2: Perceived Cycling Education Outcomes**

```
<table>
<thead>
<tr>
<th>Cycling Education Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reassurance, Encouragement and Feedback</td>
</tr>
<tr>
<td>Safe, Controlled Learning Settings</td>
</tr>
<tr>
<td>Practice Opportunities</td>
</tr>
</tbody>
</table>
```

“Safe, supportive learning environments”

```
Knowledge
Skills
Confidence
```

Improved knowledge, skills and confidence were clearly reported outcomes which were in many ways expected given enrolment motivations discussed earlier in the chapter and given the focus education courses placed on improving such elements (as explained by instructors and outlined in AustCycle materials). Participants spoke
of specific skills they developed through education, and how acquiring such skills influenced their cycling participation experiences, generally as a product of increased confidence. At the initial interview and follow-up interview (three to five months post education), women could recall, in detail, skills they had learned and how such skills had or would enhance their cycling experiences.

Participants reflected on how learning to execute and practicing basic skills correctly increased their level of cycling comfort and confidence and provided sustained outcomes. Kate’s comments highlight this point: “Something as simple as learning how to mount and dismount your bike correctly. That made a real difference and I started applying it straightaway ... it certainly made me feel a lot more comfortable and confident”. Signalling and head-checking were skills that women also felt made them more stable on their bikes. For example, Miranda commented in her follow-up interview: “I’ve been out for a ride ... I felt like I could look behind me and see if it was a car just there without falling off the bike”. Karen, who had been cycling to work for a short period prior to participating in education, reflected on how this skill assisted her in her cycling endeavours. She stated:

I do tend to wobble a bit when I’m looking over my shoulder and it’s such an important thing to do and just by [the instructor] saying about connecting with your core and thinking about that, it just sort of embeds in your mind what to do when you do look ... I know even yesterday when we were on the road and I was occasionally just doing the check for my own sake, I felt more comfortable and confident about it. (Karen)

Participants often reflected that improving skills such as gear techniques made their cycling experiences more enjoyable and gave them confidence to consider riding in different terrains and environments, as discussed by Jacquie: “Now I’m comfortable that I know which gear I should be using”. While gearing was a focus of most courses, many participants suggested that they would have appreciated additional assistance with this aspect, given the complex nature of modern bicycle technology. Several participants arrived at education courses with a high degree of self-doubt. Many had not ridden a great deal since childhood and were struggling to adjust to
new bike technology, generally lacking skills and self-belief. Lorrain discussed confidence as a positive outcome related to skill development in this regard:

It really confirmed that I had a few skills ... I thought I’d be going home after an hour because I was so rubbish compared to everybody else. I didn’t think I could take my hand off the handlebars ... just feeling as if I’ve got a little bit of skill. I just didn’t have that sense [before]. (Lorrain)

Kate also explained how her confidence had received a boost through developing skills associated with cycling education participation, in the controlled cycling environment provided by education:

It actually increased my confidence immediately which I wasn’t expecting. It was basic stuff but stuff that was really important like how to do a basic bike safety check, how to put your helmet on safely, making hand signals, things like that which I was able to apply straightaway. (Kate)

In addition to skill development, cycling knowledge attainment was also suggested to have assisted with building confidence. Similar to most participants, Lisa discussed her lack of knowledge with respect bicycles and cycling in general. She wanted to ride for recreation and transport, yet did not know much about it. This interviewee explained how information provided to her by the instructor helped her to build the confidence needed cycle to work. Marie also explained how learning where she should be positioned at a roundabout helped her feel more confident in dealing with specific traffic situations. Sarah summarised the relationship between skills, knowledge and confidence:

I think the greatest difference is confidence and I think with knowledge comes confidence and so when I actually stop the bike and get off the bike, the things he was saying are going through my mind and I imagine ultimately they’ll become [so] automatic that I will just do them. (Sarah)

Confidence improvements often seemed to be facilitated by the encouragement and reassurance provided in supportive education settings/environments. Maxine explained that prior to education, she had lacked self-belief regarding climbing hills, which had restricted her ability to participate in cycling to the extent she wanted.
With the assistance of support and encouragement, she was able to achieve something she never thought possible:

So she taught me actually how to go up a hill ... I’m not sure I would have done it without her there. It’s one of those things I suspect I would have got two thirds of the way and gone “Oh God this is too hard”. But she was there saying you can do it, you can do it and yes it made a huge difference. (Maxine)

Participants spoke of their relief at finding a group of women (through education) who felt just as apprehensive cycling as they did. In many respects, this experience seemed to serve to normalise individual deficiencies in skill, ability and confidence. The women interviewed felt comfortable in attempting to build skills, knowledge and confidence amongst supportive people. When evaluating the perceived outcomes of cycling education, women discussed an increase in confidence as the most prominent and significant outcome they experienced. While almost all participants felt their confidence improved dramatically through education, such increases were still not always to a level sufficient to support participants in reaching their cycling goals, as will be discussed further later in the chapter.

When considering these results in the context of existing literature, aspects of self-efficacy theory seem to provide insights regarding the mechanisms through which women developed confidence in education sessions. From the perspective of social learning theory (Bandura, 1977b) and social cognitive theory (Bandura, 1986), it has been suggested that individual self-efficacy perceptions are generally influenced by contextual factors. “Some situations require greater skill and more arduous performances and carry higher risk of negative consequences than do others” and thus, individual self-efficacy expectations vary accordingly (Bandura, 1977a, p. 203).

When considering different forms of cycling participation, it appeared that participants’ perceived self-efficacy was particularly hampered in environments where traffic interaction was required, complex manoeuvring skills were likely to be needed, where faster cyclists rode and where complex bicycle technology (such as hand-brakes and gears) needed to be used. Thus, women reported feeling more
willing and able to cycle for recreation than transport because recreational contexts and conditions were perceived to be less complex. Bandura (1977a) recounted that “people will approach, explore, and try to deal with situations within their self-perceived capabilities, but they will avoid transactions with stressful aspects of their environment they perceive as exceeding their ability” (p. 203). Women’s enrolment motivations appeared to relate strongly to better equipping themselves to deal with complex environments through acquiring skills and knowledge perceived to be required. As a result of participating in education, women’s self-perceived ability to handle more complex cycling tasks appeared to be improved in many cases, thus self-efficacy increased.

Cycling education courses provided a range of elements suggested to be required to build self-efficacy (or confidence), as described by Bandura (1977a, 1997) and noted earlier in the chapter. Vicarious experience and feedback, based on participant past performance or the performance of similar others, have been suggested to be particularly effective ways to build self-efficacy related to lifestyle recreational physical activity participation (Ashford et al., 2010). Seeing similar others effectively perform cycling activities and receiving feedback were key aspects of education discussed by women in relation to building confidence. Participants also took comfort in meeting other women who also lacked confidence, and seeing them improve as the courses progressed. Furthermore, instructors were referred to as positive role models in some cases and in others, women suggested that seeing other participants, equally hesitant, performing specific skills in courses gave them a sense that they might also be able to perform such skills safely through practice.

Bandura (1997) suggested that personal performance success (enactive mastery experience or performance accomplishments) is one of the most important ways to build self-efficacy. McAuley and Blissmer (2000) concurred, explaining that performance accomplishment has consistently been shown to have the biggest effect on self-efficacy. In the present study, women discussed many previous negative cycling experiences such as being involved in accidents, sustaining injuries, riding with faster participants who made them feel inadequate, riding on roads
which were perceived to be intimidating, amongst other experiences. Such experiences appeared to have damaged participant confidence, with education providing opportunities to begin to rebuild self-belief, confidence and thus, self-efficacy.

Many women interviewed considered it important that they received an opportunity to prove to themselves they were capable of cycling in safe, low-risk environments. Garrard et al. (2006) suggested in the qualitative component of their study, that “learning skills at their own pace from a trusted role model helped [participants] do risky things safely” (p. 21). Similarly in the present study, women’s trust in the instructor’s knowledge and capabilities allowed them to try things they were otherwise hesitant to do and thus confidence was enhanced through performing a difficult task safely and proving they could do so.

Verbal persuasion was also provided on many levels to participants by instructors and other participants. Several examples were noted, however Martine’s story presented earlier in the chapter stands out. In response to her lack of confidence, the instructor encouraged her to keep pedalling until she eventually executed the skill successfully, thus building confidence. It could also be said that physiological states, as related to building self-efficacy, were targeted through education courses. Bandura (1977a) explained:

Because high arousal usually debilitates performance, individuals are more likely to expect success when they are not beset by aversive arousal than if they are tense and viscerally agitated. Fear reactions generate further fear of impending stressful situations through anticipatory self-arousal. By conjuring up fear-provoking thoughts about their ineptitude, individuals can rouse themselves to elevated levels of anxiety that far exceed the fear experienced during the actual threatening situation (p. 198-199).

It appears that through education, many women interviewed learned to deal with cycling-related fears and alter their perceptions of cycling environments and activities to a certain degree. Several participants made comments related to the impact specific instructor comments had on their cycling confidence. For example, it
was often explained to participants that cyclists have a right to be on the road. For some, hearing this from a trusted role model altered their appraisals of cycling environments. Moreover, through learning to use hook-turns rather than right-hand turns, stay outside the ‘door zone’, navigate intersections, use head-checks and hand-signals effectively, women’s perceptions of environments in some cases were altered due to their ability to manage them more effectively, and thus physiological stress-based responses in some cases appeared to have been reduced.

When examining Figure 6.2 further, the importance of social support in the context of women’s development is also apparent. As discussed in Chapter Five, from a socio-ecological perspective, social support is an aspect of the social environment which has consistently been shown to positively influence physical activity participation, particularly amongst females (Eyler et al., 2002; Sallis & Owen, 1999; Vrazel et al., 2008). In a review of correlates of women’s physical activity participation, social support was found to be an “overwhelmingly positive determinant of physical activity amongst all groups of women” (Eyler et al., 2002, p. 239).

Emotional, instrumental, informational and appraisal support have been proposed as the main types of social support offered to individuals in different ways (Heaney & Israel, 2008; House, 1981). Cycling education programs provided many elements of social support. It has been suggested that “although these four types of support can be differentiated conceptually, relationships that offer one type often also provide other types, thus making it difficult to study them empirically as separate constructs” (Heaney & Israel, 2008, p. 190). As such, it seemed that all forms of social support were provided through education in many respects.

Encouragement offered by instructors and other participants was an important aspects which facilitated learning and ultimately increased participant confidence. Several participants commented on how they wouldn’t have had the courage to try new skills without being encouraged by instructors or other participants. This is consistent with observations made by Hanlon, Morris, and Nabbs (2010) where
women who participated in physical activity programs commented on the positive impact of support from other participants in motivating and encouraging each other in non-judgemental environments. Opportunities to ask ‘stupid questions’ without being judged and meeting other women who also lacked skills and confidence were discussed as points of reassurance. Instructors and other participants seemed to provide emotional support through reassurance.

Women received information, advice and feedback regarding cycling techniques and general cycling-related norms and concepts, through education. As such, verbal informational support through instruction, and in some cases, written informational support (Heaney & Israel, 2008) in the form of hand-outs provided to on-road course participants was provided. Through observing education sessions and subsequently speaking with participants, it appeared that appraisal support, which relates to “constructive feedback and affirmation”, useful for self-evaluation (Heaney & Israel, 2008, p. 190), was also a valued source of support offered in education sessions. Participants reflected on how instructors corrected individual cycling techniques, or commented on how they had improved in executing a skill as the session progressed. This appeared to play a positive role in encouraging women’s cycling participation efforts.

Vrazel et al. (2008) explained that tangible or instrumental support relates to providing people with practical help that assists them in managing responsibilities such as childcare, household duties and work. The authors also noted that this form of support can relate to having other people to exercise with (or in this case, cycle with). Such support was offered in education courses. However, it will be discussed later in the chapter that limitations associated with a lack of ongoing instrumental social support (having people to ride with, and support to allow time to cycle around work and family commitments), after education courses, resulted in limitations with respect to women’s ongoing participation.

For some women, improved confidence meant they were able to cycle for recreation, while for others, confidence helped them to negotiate complex traffic
environments, particularly those who participated in the on-road skills courses. Some participants spoke of the instant confidence boost they experienced when participating in courses, while others discussed the subsequent increases in confidence they experienced when cycling after the education courses. Women reported trying new forms of cycling in response to education and having the confidence to cycle up hills or around traffic or to new locations which they had previously felt hesitant doing.

The final aspect to consider is whether indirect outcomes discussed with respect to women’s motivations for education enrolment were realised by participants. Figure 6.1, presented earlier in the chapter, highlighted indirect outcomes sought by participants (as discussed with respect to motivations). Women interviewed ultimately wanted to manage cycling risks, enhance their enjoyment of the activity, and be able to participate in different forms of cycling (or in different cycling environments or with increased frequency). In order to gain an understanding regarding these indirect outcomes, it is useful to examine changes in desired and reported participation over time. In this regard, responses provided by participants in interview one (reflecting on pre-education participation) and interview two (three-five months post education) were examined, drawing comparisons between participation in specific forms of cycling. Table 6.7 provides a summary of such participation information. Figure 6.3 provides a visual representation of such findings, where participating either occasionally (less than once per week), or, regularly (once per week or more) constituted desired or reported participation.

Given the range of socio-ecological factors reported as influences on cycling participation (see Chapter Five), it is not the intention of this discussion to suggest that education alone was the reason participants did or did not make specific behaviour changes. It is acknowledged that the statistics presented in Table 6.7 and Figures 6.3 and 6.4 are limited in many respects by the self-reporting nature of data, small sample size and the basic measures used to assess behaviour change. As such, these figures are not suggested to be indicative of the success of cycling education programs, nor is it suggested that women’s participation increased significantly as a
direct result of cycling education participation. What these statistics do demonstrate is a likelihood that cycling education played a role in women’s decision to, and ability to, participate more frequently in some forms of cycling or in new forms of cycling. In many respects cycling education was perceived by women as playing an enabling or facilitating role. This consequently provided participants with greater options with respect to their cycling participation.

Table 6.7: Desired and Reported Participation - Pre-Education and Follow-Up

<table>
<thead>
<tr>
<th></th>
<th>Pre-Education</th>
<th></th>
<th></th>
<th>Follow-Up</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Regular</td>
<td>Occasional</td>
<td>None</td>
<td>Regular</td>
<td>Occasional</td>
</tr>
<tr>
<td></td>
<td>No. of Participants</td>
<td></td>
<td></td>
<td>No. of Participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Commuter</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired</td>
<td>17(2)</td>
<td>3</td>
<td>9(2)</td>
<td>16</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Reported</td>
<td>5</td>
<td>3(1)</td>
<td>21(3)</td>
<td>10</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td><strong>Recreational</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired</td>
<td>12(3)</td>
<td>16(1)</td>
<td>1</td>
<td>11</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Reported</td>
<td>1</td>
<td>15(2)</td>
<td>12(2)</td>
<td>8</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td><strong>Organised: Non-Competitive</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired</td>
<td>3</td>
<td>15(4)</td>
<td>11</td>
<td>2</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>Reported</td>
<td>0</td>
<td>2</td>
<td>27(4)</td>
<td>0</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td><strong>Organised: Competitive</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired</td>
<td>0</td>
<td>0</td>
<td>29(4)</td>
<td>1</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td>Reported</td>
<td>0</td>
<td>0</td>
<td>29(4)</td>
<td>1</td>
<td>0</td>
<td>28</td>
</tr>
</tbody>
</table>

Note: Total participants = 33; Follow-up = 29: Numbers in brackets indicate responses for those participants who engaged in one interview only (no follow-up).

Note: Pre-education = Responses in interview one; Follow-up = Responses in follow-up interview.

The main changes observed include an increase in the number of women who reported regularly using their bicycles for transport (at least once per week) and the number of women who had engaged in some form of organised, non-competitive cycling. While nine women had participated in some form of organised, non-competitive cycling at follow-up (compared with two prior to education), there remained opportunities to engage additional participants in organised cycling, with 18 women in total indicating an interest in such forms of participation (either regular or occasional) in the final interview.
Further to this, women were asked to explain why they had or had not participated in different forms of cycling. By exploring this, knowledge was gained regarding the types of organised participation women were looking for and some of the factors that encouraged or discouraged their involvement. Such issues are examined later in the chapter. Figure 6.4 summarises outcomes as reported by participants with respect to those who increased, maintained, decreased, or at no stage participated in specific forms of cycling. To ascertain this, participants were asked to discuss changes in the frequency of their participation in different forms of cycling during follow-up interviews.
When reflecting on results presented in Figure 6.4, across all categories of participation, 22 of the 29 participants who were interviewed post education participation and at follow-up reported an increase in one area of their participation. When further examining data related to Figure 6.3 and 6.4 the researcher noted that women who reported little or no change in participation were those who participated in basic skills training sessions only. While the largest proportion of participation occurred in basic skills training, meaning a greater likelihood that a participant who did not cycle would have come from this group, it still appeared that basic skills training alone, in many cases, was insufficient to assist women to achieve their cycling goals. Other socio-ecological factors such as weather, time, and a lack of social support, reportedly restrained some participants in their cycling progress. However, others reported not having progressed to a point where they felt comfortable cycling in complex environments, particularly on roads. Those who participated in on-road skills sessions appeared to report the most positive changes. Also, all five Sydney participants who engaged in follow-up interviews reported increasing one area of their cycling participation.
Telfer et al. (2006) assessed participant cycling behaviour change two months post participation in a pilot cycling education program. Of the 105 participants interviewed, 59 suggested they had increased their level of cycling since education participation, 31 had not changed, six had ridden less, and nine had not ridden since the course. The most common reason cited for participation increases was improved confidence and skill level obtained through education. While overall participation was examined, the researchers did not report on participation in specific forms of cycling and as such, the present study adds additional insights with respect to this aspect of participation. Furthermore, Garrard et al. (2006) examined participation influences reported by program participants, although participation changes were not a major focus of the research.

As shown by Figures 6.3 and 6.4 above, women’s reported participation outcomes indicate that in many cases, new cycling options were opened for study participants through education. When interviewed months after their involvement in education courses, most women suggested that the skills and knowledge gained through training were retained. For those who had put such skills into practice, cycling experiences and opportunities had been enhanced. Maxine spoke of improvements in cornering: “Learning to keep the opposite leg straight ... suddenly I could actually turn a tight corner instead of taking a huge turn that I was doing otherwise. Just that thing alone made a really big difference”. Lorrain summarised the range of skills she had retained:

It was amazing how different it was after doing the course ... I just felt ... in control of the bike and braking. It just confirmed that my riding ability was much better than I thought it was, and gave me strategies and tips for being on the road. (Lorrain)

Lorrain’s sentiments captured the feelings of many women interviewed who had previously felt inadequate on a bicycle and through training, had begun to feel more in control on their bikes and more willing to cycle. Relationships between the indirect cycling education outcomes of risk management, cycling enjoyment and participation opportunities appeared to exist where women reported that as they felt more in control of their bikes (able to manage risks), they began to enjoy cycling
more and/or see other forms of cycling as a possibility (such as event-based cycling, commuter cycling, or social riding groups). It was often through building confidence that participants felt they were less likely to fall off, which helped them to relax on their bikes, enjoy the ride, and look for other ways to experience cycling.

Peta spoke about how learning to manage intersections had helped her use her bike for transport more frequently and easily: “The education [course] gave me the skill to navigate the intersections ... Now the thing with the intersections is the confidence has kicked in so I can handle the intersections a lot better than I would have before the course”. Karen explained that, in her mind, increased confidence related to dealing with traffic ultimately opened up to new cycling possibilities: “It’s boosted my confidence on the road a little bit more. I feel a lot better prepared and also ready to take it a little bit more seriously possibly”. Amy also reflected on how her increased confidence helped her begin to overcome her fear of cycling near traffic:

I’ve got a bit better since the lesson and that’s given me enormous confidence. When [the instructor] said you have a right to the road, you have equal rights, just behave like you’re a car and I did ... I rode home the same road that I had come on ... feeling quite proud of myself and very much in control of my riding. (Amy)

These comments demonstrate how confidence was perceived to assist participants in managing risks and ultimately allowing them to cycle in different capacities. Through increased confidence and control, participants discussed other cycling outcomes they had experienced after having participated in education. Jacinta had joined a local BUG: “I’ve joined the BUG. I’m in my 70s you know. I’ve been cycling with a group on Saturdays”. Millie was an inspirational example, having participated in the introductory course, and subsequently discovered a passion for triathlons and competitive cycling as an athlete with a disability. Her comments highlight this:

Before I had the education I couldn’t ride a bike. If you can’t ride a bike you can’t do a triathlon. I think that’s fairly self-evident ... [I want to] keep on doing triathlons and I’m actually planning to get myself to London. I qualify for paratriathlon in my category ... [and] I’m going to have a go at Around the Bay ... 100km. (Millie)
Amy spoke of how she had started a cycling group through a community organisation with which she was involved: “I did do something very exciting with cycling. I started a group ... it gets other people out and they meet different people and I meet different people”. Other participants also discussed organising groups of friends to ride, with their newfound confidence. Marie also discussed an experience related to a group weekend ride: “It was really exciting ... that’s pretty amazing for Sydney to have 10 young women who want to go for a weekend ride”. Email communication with Peta confirmed that she had also started a cycling group with some women she knew.

While organised and recreational group cycling were some new participation opportunities upon which women capitalised, others found that they were able to cycle for transport. Lisa discussed how she started cycling to work and other destinations while Andie reflected on the changes that had occurred in her cycling: “I ride all the time now ... whether the course did it or it was just that I got organised, got motivated and I pretty much ride [to work] four or five days a week”. Penny spoke of increases in commuter cycling and participation in a community cycling event: “I’m definitely a bit more confident and on the weekend I did the 20km bike ride that the RACV did as part of the Bay ride ... and I’ve ridden into work today”.

While these examples provide just a snapshot regarding the more indirect outcomes of education, it appears that through developing skills and knowledge and receiving encouragement, women’s confidence is increased. Outcomes varied depending on the education level, desired outcomes and participant’s receptiveness to education, along with their perceptions of their local environment and the social support networks available. However, for many, the desired outcomes of risk management, increased enjoyment and new participation opportunities were experienced to some extent.

While enjoyment and participation opportunities were clear perceived outcomes for most, women had mixed responses regarding risk management outcomes. In
most cases, participants felt they were better equipped to handle cycling environments, however many still found roads to be an intimidating prospect and safe, attractive route options were important to women in this regard. Women who lived near main roads or needed to mix with traffic often remained concerned regarding their level of cycling risk. Women still needed separation from cars to feel comfortable. While building skills and confidence was very important, supportive infrastructure also appeared to be essential to help women feel that their level of cycling risk was manageable. This was particularly the case for commuter cycling, and in connecting to paths in their local area. As such, while participant risk perceptions were often lessened, they still seemed elevated beyond a comfortable level in many cases. Such issues are examined further later in the chapter.

Additionally, many participants reported a sense of achievement, empowerment or pride that came through participating in education, largely a product of improved skills and confidence. Several women reported cycling home from courses feeling quite proud of themselves. Participants also discussed the sense of achievement they felt related to having proven they could cycle better than they thought they could. While not a specific stated enrolment motivation, several women reported this as a general cycling motivation, or alternatively, as a source of positive reinforcement regarding their cycling participation more generally (as discussed in Chapter Five). As such, it appeared that in many cases, feelings of empowerment, pride and achievement related to cycling were often facilitated by cycling education experiences and related learning environments. Figure 6.5 provides a summary of cycling education outcomes experienced, as discussed by participants. Although most participants reported such positive outcomes, in a number of cases, a range of other barriers still remained which constrained participation. Such findings will be presented later in the chapter.
When reflecting on the outcomes women believed they derived from education, links between socio-ecological influences on participation discussed in Chapter Five and education-based outcomes can be made. Table 6.9 provides a summary of socio-ecological factors that women reported as influences on their participation in different forms of cycling. Ticks have been placed beside factors participants generally suggested were improved through education. Women spoke of their increased skills, knowledge and confidence, with cycling motivation increasing as a product of enhanced enjoyment of cycling in several cases.

As a final aspect of interviews participants were asked whether they would recommend the program to others, given that a willingness to recommend or positive word-of-mouth actions are generally considered indicative of satisfaction (Anderson, 1998; Bitner, 1990; Bloch, 1986; Oliver, 1980). The answer to this question was a resounding yes, with all participants suggesting that they would recommend education to others or had already done so. Participants were asked to explain their reasoning for such recommendation. A selection of comments has been included below (see Table 6.8) to demonstrate the enthusiasm of responses with respect to women’s cycling education recommendations. These comments...
highlight the truly positive nature of education experiences and the aspects that were most beneficial for their development.

**Table 6.8: Comments Regarding Course Recommendation**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lorrain</td>
<td>I think this is definitely something that lots more people should have the experience of ... For women in particular maybe because we’re more social, it really works for us ... Because you don’t know what you don’t know until you do the course ... the others were fairly tentative like me and everybody found that they were better than they thought they were.</td>
</tr>
<tr>
<td>Lynne</td>
<td>200%. Maybe because it worked for me, I just think that rather than doing it on your own and ... picking up bad habits or wrong ways, you’re with a professional ... For me starting from the basics, getting on, getting off, very basic bike maintenance stuff like that, they’re the kind of things that if you’re learning off another person they’re not necessarily going to go through.</td>
</tr>
<tr>
<td>Mindy</td>
<td>Yes, I would. They would gain confidence on the bike in a safe environment with understanding people</td>
</tr>
<tr>
<td>Amy</td>
<td>I’ve already told two people that they should do it ... and my daughter is about to take a course as well.</td>
</tr>
<tr>
<td>Leanne</td>
<td>Yes and we have. I think it gives you a good space to learn some new things. We can all learn something new and practice that in a non-threatening environment so I think it was a really good opportunity.</td>
</tr>
<tr>
<td>Peta</td>
<td>Yes, absolutely ... I’ve suggested the bicycle courses to a few people at work who are interested in riding ... they say I’ve got a bike and I want to ride to work, but I don’t have the confidence ... I’ve been saying you can go and enrol on this course and get the confidence you need.</td>
</tr>
<tr>
<td>Veronica</td>
<td>For sure. Because it just gives you some confidence. It shows you how to stop, how to check for what’s going on around you, head check. It teaches you how to sit on a bike properly, how to brake and come to a stop. It’s stuff like that that I had no idea about.</td>
</tr>
<tr>
<td>Penny</td>
<td>Definitely ... Just to give you confidence to start it. It sets you at ease ... just to give you confidence to go back and get on the bike and go out there and do it.</td>
</tr>
<tr>
<td>Jacque</td>
<td>Definitely. I think that course that I did would absolutely help any beginner who wants to do more bike riding ... It just helped me because I think one of the fears is getting to know your bike and being able to handle it and I think that course actually did a lot of that.</td>
</tr>
<tr>
<td>Caitlyn</td>
<td>I’ve subsequently told some people at my workplace about it ... I would encourage anyone to do it, not only women ... the person who took the course was really non-judgemental and was very, very patient ... I didn’t feel as though I was stupid and everyone else there knew more than me.</td>
</tr>
<tr>
<td>Sarah</td>
<td>Absolutely. Because it was very basic, it was very easy to follow. He was very open to people asking him questions but he obviously had an excellent understanding of the bike and he could communicate it which was a huge part of it ... My son has told me previously that this is what I need to do but he’s just told me ... [so to] to have someone show me and demonstrate it made a huge difference.</td>
</tr>
<tr>
<td>Common to all formats</td>
<td>Specific to this format</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I Knowledge of options ✓</td>
</tr>
<tr>
<td></td>
<td>I Commitment</td>
</tr>
<tr>
<td></td>
<td>I Time</td>
</tr>
<tr>
<td></td>
<td>I Fear of going fast by nature</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: ✓ = Positive outcome of education experience
6.4 SUPPORTS FOR AND CONSTRAINTS ON WOMEN’S CYCLING: BEYOND EDUCATION

The remainder of the chapter examines factors beyond education sessions that proved to be valuable in supporting women’s participation and those that constrained such participation or made participants’ experiences less enjoyable. Socio-ecological theory (Sallis & Owen, 1997; Stokols, 1992), suggests that a multitude of factors influence behaviour. As such, cycling education alone was not expected to provide sufficient intervention to enable all participants to engage in cycling as they desired. While women generally reported improvements in their knowledge, skills, and/or confidence (individual factors) in response to education participation, a range of socio-ecological factors remained influential post education participation. This relationship is demonstrated in Figure 6.6. It can be seen that women’s achievement of desired education outcomes (which included perceived risk management, enjoyment outcomes, and new participation opportunities), were influenced by a range of socio-ecological factors. For example, some women who participated in basic skills education sessions (without on-road training) and lived in areas perceived to have poor cycling infrastructure, still reported cycling risks to be of significant concern in follow-up interviews.

While skills, knowledge and confidence were generally suggested to have increased, some participants noted that improvements were not to a level sufficient to support them in handling complex cycling environments perceived to exist in suburbs of Melbourne and Sydney. Furthermore, a number of participants in the introductory/learn-to-ride, and basic skills levels of education explained that they still perceived that skill deficiencies and lack of confidence were holding them back. Others were struggling with competing priorities leaving little time for cycling (recreational cycling in particular). Some women did not have a suitable bike available or found it difficult to transport their bike to paths and safe cycling spaces. In addition, due to their lack of confidence around cars and aspects of the physical environment, such as hills and road infrastructure, women did not feel they had a
safe, appealing route to a suitable path or other destinations. Table 6.10 below summarises the main constraints on participation, reported in follow-up interviews.

**Table 6.10: Major Socio-Ecological Constraints at Follow-Up**

<table>
<thead>
<tr>
<th>Type of Cycling</th>
<th>Influential Remaining Barriers/Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Forms</td>
<td>Weather, terrain, bike access, safe route availability (infrastructure), intimidation (social factors), traffic/ roads.</td>
</tr>
<tr>
<td>Commuting</td>
<td>Appearance on a bike, carrying things.</td>
</tr>
<tr>
<td>Recreational</td>
<td>Friends to cycle with (similar level), bike transport and safe path access, time (competing priorities).</td>
</tr>
<tr>
<td>Organised: Non-Competitive</td>
<td>Time (competing priorities), no suitable options found.</td>
</tr>
<tr>
<td>Organised: Competitive</td>
<td>Lack of interest, fear or cycling fast, time, cost of equipment and fees, lack of attractive options.</td>
</tr>
</tbody>
</table>

Women who participated in basic skills sessions in Melbourne’s east generally reported increasing their level of cycling-related skill and knowledge through education, however gaps remained. These women had not practiced such skills around traffic and perceived their local environment to be hilly and littered with busy arterial roads. Many expressed an absolute fear of cars and suggested they would never ride near them (despite a small proportion also overcoming this attitude through education and assistance through group cycling). These participants generally believed they had a solid network of paths available yet found accessing them without mixing with traffic to be a difficult task. In an interview with a representative from a local council in this region who organised the cycling training sessions it was suggested that roads were a major issue and while education was a good initiative, high volumes of fast moving traffic, with limited safe provisions for cyclists in that council region, presented major issues for both recreational and commuter cycling participation.
Figure 6.6: Cycling Education Outcomes - Influence of Socio-Ecological Factors
While skills and confidence could help participants better manage cars and traffic, results indicated that education was only able to assist women to gain the confidence necessary to cycle near cars if safe and supportive infrastructure was available. Such infrastructure helped women translate the skills and confidence developed through education into action. This is consistent with research which suggests women respond better to environments where a high degree of separation from traffic is present (Dill & Gliebe, 2008; Emond et al., 2009; Garrard et al., 2008).

In Melbourne’s east, only two women engaged in any form of commuter cycling following education participation. These two women both used off-road paths, one cycling part-way to work in the city (train to the city, then cycle to work) and one riding on the footpath when there was not an off-road cycle path available.

It was in Melbourne’s northern suburbs where the most cycling was reported at follow-up, particularly for commuting purposes. Most women in this area participated in on-road education courses. These women typically felt that the flat terrain and supportive culture in their local area supported their participation. There was less concern regarding being injured on the road as women generally perceived they had access to safe route options and the confidence to handle a bike safely and deal with different intersections, as a product of training. These women did, however indicate that if a safe route with limited engagement with traffic were not available, they would not be willing to cycle on the road.

In Sydney’s inner west, where data was somewhat limited by the small follow-up sample size, there were mixed outcomes regarding cycling participation post education. Perceptions of route suitability seemed to be highly influenced by levels of skill and confidence. One participant regularly cycled to the local shops not far from home as that journey was perceived to be reasonably safe, while two other Sydney-based participants commuted to work by bicycle, and were happy with the route they had available. These two participants had high levels of confidence, largely in response to education and experience practicing alone or with others. However, other participants in Sydney’s inner west suggested that the volume and
speed of traffic and consequently the routes available in their area were unsafe and traffic was not effectively managed. Skills, knowledge and confidence developed through education assisted women to negotiate routes that were perceived to be safe, however, participants were generally unwilling to consider cycling where separation from traffic was inadequate. And for those commuting, this was an obvious constraint, with recreational and organised cycling participants suggesting that a safe route to a path was also required. Hence, such influences impacted all forms of cycling participation to some degree.

When choosing a route to a destination or path, in addition to traffic, hills and consequently fitness and ability to manage gears were often discussed as constraints. Many women suggested their ability to manage gears had improved through education. One example was Jacquie: “Before, I wasn’t able to go out at all, but now … I’m quite comfortable to just ride up the hill to where we live using the lower gears. It’s [about] knowing what gear to use”. A large proportion of participants would have liked additional assistance learning to use gears effectively as it was only those cycling on a regular basis who were able to implement the basic gear-handling skills learned through education courses. Comments made by Rhonda, who went through basic skills training and lived in a part of Melbourne’s east, perceived to be hilly, highlight this: “If I could use my gears better … I think that would help with some of those big hills … I get a bit anxious and it’s exhausting … having those hills on the way home”.

Participants generally worried that their fitness was insufficient to manage hills they might encounter along their ride and with a lack of confidence using gears, several felt anxious. Debbie discussed how terrain dictated the routes she chose: “I look for a flat route at this point because I don’t feel like I’ve got the fitness to factor in hills”. Those women who attended the on-road, more advanced training generally found that their ability to cycle up hills had improved through training, more than those who only learned to use gears in flat, controlled environments (basic skills courses). The combination of fitness, skill requirements and terrain presented as a barrier for a number of women across different forms of cycling, particularly those
in Melbourne’s east who participated in basic skills training. Fitness was reported as one of the top three cycling barriers by women in a recent survey (Cycling Promotion Fund & Heart Foundation, 2013), and was also discussed by Garrard et al. (2006) as a barrier to cycling.

While a range of physical environmental influences constrained women’s participation post education, individual factors such as time were often also cited as barriers to recreational and organised cycling in follow-up interviews. This is consistent with previous research (Cycling Promotion Fund & Heart Foundation, 2013; Garrard et al., 2006). Several women had young families and/or work commitments and subsequently found it difficult to cycle for recreational purposes, even with newfound skills. It was noted earlier in the chapter that while cycling education courses provided many forms of social support, several women required additional instrumental support (a form of social support related to practical help with family care responsibilities, household duties and work) (Vrazel et al., 2008) to support their cycling participation. Women discussed caring for children, grandchildren and sick family members, along with busy work schedules, and moving house, amongst other things, as limiting their ability to make time for recreational cycling. Participants attempted to overcome such barriers in different ways. A few even tried to include their children in their cycling pursuits by purchasing a bike seat (for the child’s father to use) or taking their children for rides at the park. There were mixed outcomes with this approach and women suggested that it was unlikely that they would engage in regular recreational rides with their children.

While time limitations in response to caring responsibilities and work prevented participation in recreational cycling, in a few cases it facilitated or encouraged commuter cycling, with women suggesting that cycling to work was convenient, saved them time, and allowed them to do other things they needed/wanted to do. It seemed that if women lived close enough to work or specific destinations, and had the required instrumental support, cycling offered a way for women to be physically active without losing precious time out of their day. In some respects, this
seems to somewhat contradict issues discussed by Garrard et al. (2012), where the authors noted that household responsibilities, trip chaining (multiple stops in one trip), and carrying passengers have been discussed in transport literature as barriers to female commuter cycling. In the few cases mentioned, safe route options were available, a car was not a transport option, and instrumental support was provided regarding child care and drop-offs and so forth. Such conditions encouraged commuter cycling.

Social support played a major role in women’s initiation into cycling, with partners, friends, work colleagues, children and parents all playing different roles in the context of participation. This was logical given that the social support has been found to play a key role in influencing women’s physical activity participation (Eyler et al., 2002; Sallis & Owen, 1999; Vrazel et al., 2008). Despite this support, women often expressed concern regarding feelings of intimidation related to faster male cyclists (in Lycra), and trying to keep up with other people. These were discussed as deterrents across all forms of cycling in different ways. From a commuter and recreational perspective, it was the issue of faster male cyclists intimidating participants by overtaking at high speeds. Further, with respect to recreational cycling, women expressed discomfort with the idea of holding friends, family members and groups back, if their fitness was inadequate. Much of this perception appeared to have been shaped by women’s low levels of self-efficacy with respect to fitness and abilities and perceptions of the local cycling culture: if you are not a MAMIL (middle aged man in Lycra), get out of the way! Perceptions of intimidation prevented many women from riding with organised groups or groups of their own friends whom they perceived to be better cyclists. While education improved confidence, such perceptions often remained post education.

While women did not want to hold people up, many did seek opportunities to engage in organised group cycling as they saw it as a way of facilitating ongoing development and mentorship. Women found their confidence and skills improved through education, but many were still not entirely comfortable cycling on their own. Most suggested they would prefer to ride with a group for social
opportunities, to learn new cycling-related skills and routes and to manage cycling risks (in case they fell off, had a flat tyre, or otherwise). This is consistent with findings presented by Daley et al. (2007) and Garrard et al. (2006) who suggested that women find the prospect of riding with a group to be a lower risk option.

While women interviewed sought opportunities to participate in a group they had very limited knowledge of groups available and whether they would suit their needs (concern regarding groups being too fast, competitive, or full of fit men). Some sought advice in education sessions, and many discussed unfulfilled interest. In several cases BUGs were discussed by education instructors in sessions. A few women subsequently joined a BUG, while others made contact with a group but did not think it was suitable for their level and interests. Some were even too intimidated to make the contact at all, as highlighted by Martine: “I’m a bit nervous about joining a group and them expecting me to be better than I am”.

Through additional exploration including interviews with female members of two BUGs in Melbourne, and the researcher’s active participation in BUG rides, it seemed that such groups would be suitable for some women, but not all. BUG participants were typically retirees meaning rides were often held on weekdays. The timing, length, duration and pace of rides, coupled with an older demographic group, meant that they were not deemed suitable for the needs of the majority of study participants. Two women specifically spoke of their issue with wanting to ride with a group, and with their sons; however the BUG did not seem supportive of this from their initial explorations.

There seemed to be variation between the level and pace at which different groups rode, somewhat reinforcing women’s concerns regarding joining groups for fear of holding others up. While the BUG rides in which the researcher participated were at a leisurely pace with supportive people, members of such groups spoke of other BUGs they had come across which were very different, with fast, intimidating riders driving such groups. In one case, the participants reported creating their own breakaway group from the main BUG so they could focus on social cycling, coffee
breaks and enjoyment, as opposed to speed and fitness. When reviewing women’s concerns and apprehensions regarding joining a cycling group, such variation seemed to present issues in BUGs being promoted as universally appropriate for entry level women.

Three of the more confident study participants reported starting their own cycling groups with their friends or people from an established community group. These women felt they were now capable of leading others on rides, mapping routes and negotiating hazards. However, the majority of participants did not feel this way and wanted to feel secure with other more experienced riders leading the way and managing risks. Women also sought further knowledge with respect to choosing bicycles and bicycle equipment. Bicycle stores were typically places where women did not feel comfortable unless they were accompanied by a more knowledgeable, mechanical- or bike-minded person (typically a male). This is consistent with previous findings which suggested women did not feel comfortable or supported in bicycle stores (Garrard et al., 2006). In some cases, women did not have access to their own form of informational social support (Heaney & Israel, 2008), through a knowledgeable friend or family member. They wanted to know more about the best products to buy, routes to ride and ways to ride safely and didn’t have a source available to assist with this.

Women told of their experiences purchasing a bike and then having it sit in their garage for months, years, or decades before they actually rode it. This was often suggested to be a result of their lack of knowledge, skills and confidence with education providing some support in this regard. In a few cases, the bike they purchased was not suitable, which inhibited their cycling. There appear to be opportunities to strengthen communications between bicycle stores, education providers and cycling groups to maximise women’s cycling transition experiences. That is, rather than women feeling intimidated in a bicycle store, purchasing a bike they did not know how to use and losing their motivation and behaviour change momentum, they could be offered additional forms of social support at that entry
point to encourage their cycling learning and development. Such recommendations are discussed in Chapter Seven.

Another key social factor which limited women’s cycling participation post education was related to driver culture and the apparent disdain for, and lack of consideration of, cyclists displayed by motorists in Melbourne and Sydney. This was considered by participants to be closely linked to physical environments, where poor infrastructure was suggested to be one of the reasons drivers and cyclist needed to interact at all. Such factors deterred several women from cycling (particularly commuting) post education. As discussed by Garrard et al. (2012), for women, traffic risks extend beyond just risk of injury or fatality to include near misses and harassment. This further reinforces the need for separation from traffic, as women feared reckless drivers who presented as a threat to their safety and feeling of comfort on the road. Women generally felt they needed a great deal of confidence, skill and fitness to be able to cycle on roads or near cars. And while education had assisted, many did not feel brave enough to tackle city roads alone.

Weather, particularly rain and cold temperatures, were deterrents across all forms of cycling, beyond education experiences. A few participants suggested they would commute by bike rain, hail or shine; however the majority reported sunny weather to be a motivator, with cold wet weather a deterrent. Such weather conditions were perceived to be either unpleasant or unsafe:

I’ve had a few rides but ... it’s been really wet as well as cold ... I’m just not prepared to go out on wet, slippery roads so I’m looking forward to the weather brightening up and it being dry enough and I’ll give it a crack. (Lorrain)

Participants’ emphasis on the potential hazards and risks associated with cycling remained strong even months after education participation. In part, women saw cycling education as a risk management strategy and they wanted to engage in any opportunities available with regard to managing risks. This included learning how to maintain their bikes and fix basic mechanical issues (particularly flat tyres). Participants were not particularly mechanically minded or interested in the complex
bike components and were generally happy to let their partners, sons, or brothers worry about complex bike mechanics. Despite this, women wanted to know enough to be able to take care of the basics and respond if mechanical breakdowns occurred while they were cycling. As such, most women suggested they would be interested in learning more about basic bike mechanics and how to manage risks while cycling. Karen’s comments highlight this: “You and your bike are a team ... if your tool is not in fine form you’re not going to be ... I’ll probably enrol and do one of the maintenance classes”.

Participants appreciated learning about gears during education, but needed further development in this regard. Those who could manage their gears effectively suggested cycling had become a more manageable activity in response to this area of skill development. Additional opportunities for women to continue to learn and receive feedback and assistance in changing gears and managing terrain were identified as a way for women to engage more fully in cycling and enjoy their experiences further. To summarise, education opportunities were well received; however many women sought opportunities to continue their learning through additional formal education sessions, one-on-one supported commuter journeys (i.e., have an instructor help them ride to work), or group rides in a range of settings. Women generally had limited knowledge of groups they could join, although in some cases, had received information through education (instructors or other participants) about BUGs. They sought opportunities to learn additional mechanical skills, strategies for using gears effectively, and generally seemed to need additional continued social support.

6.4.1 Issues Observed through the Research Process

In addition to cycling barriers discussed by women post education, observations relevant for consideration in proposing recommendations to support women’s entry into cycling in Australia were made throughout the research process. Through pilot interviews (N=5), and discussions with education participants and stakeholders, it appeared that the concept of cycling education was commonly
misunderstood and/or it had gained a somewhat negative stigma. Pilot interviews explored participation barriers and the likelihood that women would perceive education courses as a viable option as they looked to increase their cycling participation in some way. While all pilot interview participants reported lacking confidence on their bikes in some respects, particularly around cars and other cyclists, only one participant thought education might be suitable for her situation prior to being provided with an explanation as to what education involved. Cycling education was perceived as being for absolute beginner cyclists learning to cycle for the first time.

In addition to pilot interview responses, a number of cycling education participants discussed how their friends or family members had teased them or belittled their involvement in cycling education in some way. For example, Lynne spoke of her friends’ reaction to the knowledge she had enrolled in a cycling education course: “Everyone kind of went ha, ha cycling classes, they thought it was a big joke but I ... wanted to do it through someone that seemed like a professional because I think that’s the quickest and easiest way to learn”. Andie commented: “My boyfriend just laughed. I know how to ride a bike”. Rhonda was even teased (lovingly) while participating in her research interview: “My daughters have been laughing at me ... my eldest daughter who is just visiting this afternoon is standing here in the doorway laughing right now about me doing the [education] course”. While none seemed ill intended, the perception of cycling education as something silly or unusual seems to limit the scope for education to assist in efforts to encourage women’s cycling.

Participants themselves even spoke of their own surprise at hearing that adult cycling education was available, as highlighted by Trish: “I said what? People actually teach you how to ride bikes today?” While other participants commented on what their participation in cycling skills training must have looked like to passers-by: “I’m sure there were quite a lot of people [who] walked past and thought what is that person doing? ... Either that or thought that I was very silly not being able to ride a bike”.

239
In Australian cities, while the requirements vary between states, to obtain a driver’s license an adult must go through extensive training. Some states require drivers to engage in a certain number of hours of supervised practice, where skills are developed in different conditions over a long period. A series of assessments are then completed (including a practical test), at which point the person can be deemed by a professional to be worthy of receiving their licence. Yet, from the preceding discussion, it seems that adults are expected to be able to cycle safely on the road without training. This comparison has not been included to advocate mandatory training, testing and licensing for cyclists. Rather, it seems that targeting the negative stigma attached to education and normalising training as somewhat comparable to driver training could benefit women’s cycling development.

In addition to an often negative stigma attached to education, there appeared to also be issues with communication and collaboration between stakeholder groups and outward communication with participants. In one council region, education participants were advised that council-operated group rides would be offered following their education sessions. This did not eventuate, much to the disappointment of participants. In another council area, confusion existed regarding education progression from a basic skills level to an on-road course. While most council groups offered both levels, these participants were generally only aware of the basic skills courses, with many subsequently suggesting that they needed further training and experience on roads. This confusion resulted in some women leaving education still requiring further support and assistance, without knowing specifically how to obtain this. It appeared that subsequent opportunities for additional integration and links to ongoing support and development were needed.

Further discussion with representatives from local councils also highlighted potential opportunities for collaborative action. From interviews with representatives in two of the regions of interest, it was explained that individual areas within government departments funded cycling education programs. Yet it was clear that cycling education outcomes could potentially serve a range of council agendas, across departments/areas, including environment, health, communities
and recreation, leisure and sport. Council representatives suggested they were largely focused on their own portfolios and strategies, seeking to meet specific targets through the provision of cycling education. Given that funding available for cycling education programs was said to be limited, the disconnect that appears to exist between local council departments and areas (such as sport and recreation, health and sustainable living), seems to inhibited the scope of education delivery that might have been possible had collaborative support, across agendas, been the approach taken. This seemed to be a missed opportunity. Such opportunities for action appear to align with the current Federal Government’s stance on the need for increased stakeholder collaboration in sport and recreation delivery (Commonwealth of Australia, 2010, 2011).

6.5 CONSIDERING ACTION TO SUPPORT WOMEN’S PARTICIPATION

Findings suggest that safe, supportive, physical and social cycling environments are essential to encouraging Australian women to cycle. Some major constraints on women’s participation seem to relate to feelings of intimidation associated with being ‘bullied’ by faster cyclists, perceptions with regard to groups being too advanced, and feeling threatened by impatient drivers. These collective social aspects are considered to be elements of local cycling culture, and found to be major constraints of women’s cycling participation in the present study. Furthermore, adequate separation from cars is considered integral in women’s decisions to cycle. When reflecting on the results further, with a particular emphasis on supports required beyond education, it is useful to recall the desired and realised outcomes as discussed by women (see Figure 6.1).

Women generally saw education as a means of improving their skills, knowledge and confidence. Through such changes, women hoped they would be able to better manage cycling risks, find cycling more enjoyable and be able to engage in a range of cycling options. While most discussed these as outcomes they experienced to a degree, it seems that additional action is required to assist women to realise all desired outcomes. This supports the contention that multifaceted action focusing
on different socio-ecological environmental factors is required to encourage physical activity and cycling participation (Austroads, 2010; Bauman et al., 2008; Giles-Corti, 2006; Pucher, Dill, et al., 2010; Sallis et al., 2006).

Based on findings with respect to factors that constrained participation beyond education sessions, Table 6.11 summarises a series of action areas that require attention in efforts to encourage Australian women to participate in cycling generally (i.e., to encourage all forms of cycling). Such factors have been classified as being related to the individual (downstream), or the physical, social and policy environment (mid/upstream). At the individual level, entry-level women seem to require additional support from understanding, knowledgeable people. Participants appreciated meeting other women who were equally as apprehensive on their bikes. They also had a thirst for knowledge and wanted to ask questions of more experienced cyclists, instructors and even the researcher. While women improved skills through education, many wanted to continue learning beyond education sessions, and ride with groups of people to ensure safe routes were chosen and that they would be safe if they experienced mechanical issues. This would involve ongoing development opportunities.

**Table 6.11: Possible Actions to Support Women’s Cycling Participation**

<table>
<thead>
<tr>
<th>Actions targeting individuals (Downstream)</th>
<th>Actions targeting environments (Mid/Upstream)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing mentorship, support and encouragement.</td>
<td>Road infrastructure and facilities: Separation from cars as the priority.</td>
</tr>
<tr>
<td>Assistance with mastering complex skills: gears, cycling near traffic, mechanical issues</td>
<td>Driver and cycling cultural change (supporting novice riders to feel safe and comfortable).</td>
</tr>
<tr>
<td>Assistance with route planning: how to get safely to work/ cycle path.</td>
<td>Establishment of appropriate level cycling groups.</td>
</tr>
<tr>
<td>Assistance with bike selection (and short-term bike access options).</td>
<td>Supportive bicycle stores (referral systems).</td>
</tr>
<tr>
<td>Being connected with relevant organisations and information.</td>
<td>Public relations/awareness training: Cycling education.</td>
</tr>
</tbody>
</table>
Other recommended actions relate to the provision of safe cycling infrastructure that focuses on a high degree of separation from cars. In the present study, women who could identify a safe, attractive route to a destination or path seemed to feel as though commuter and recreational cycling were more realistic options. As such, enhancing infrastructure and providing individual assistance in planning and attempting to navigate specific cycling routes for the first time (by bicycle), seems to be a way women’s cycling could be supported. It was also noted that increased awareness of cycling education programs, their relevant features and the positive outcomes women experience in response to education, is necessary. Cycling education appeared to have a somewhat negative stigma associated with it in some respects (as discussed earlier in the chapter). Focusing on changing such attitudes could potentially benefit the effectiveness and reach of such programs.

6.6 SUMMARY

Chapter Six provided insight into the motivations participants reported regarding their education enrolment decision and the expectations they held with respect to programs. Motivations for enrolment revolved around building skills, knowledge, and confidence, with an ultimate aim of managing risks associated with cycling, enhancing cycling enjoyment and opening new cycling possibilities through skill, knowledge and confidence gains. Women suggested such motivations stemmed from a range of barriers experienced related to the increasing complexity of bicycle technology, complex cycling environments, intimidation from faster cyclists, and an inability to improve skill without assistance.

Women interviewed appreciated the skill development opportunities, individualised feedback, safe and controlled learning environments and the local nature of programs in most cases, and particularly valued feeling normal amongst other novice female participants. Education instructors (both male and female) were suggested to be very knowledgeable and supportive overall, making the experience a positive one for participants. Most women suggested that they dramatically improved their skills, knowledge and confidence, and responses indicated that the
desired outcomes related new participation opportunities and enhanced enjoyment were realised in many cases. Risk management outcomes were observed, in that women felt that they were more competent and confident on their bikes. However, concern regarding unpredictable traffic and faster, intimidating cyclist still concerned women. Thus, logically it follows that supportive infrastructure is required to enhance the risk management perception-related outcomes achieved through education, as will be discussed in Chapter Seven. Those who had safe, attractive route options available particularly felt that their level of risk decreased as a product of education.

Telfer et al. (2006) found that of the 105 participants interviewed, 59 suggested they increased their level of cycling, 31 had not changed, six had ridden less and nine had not ridden since the education course, two months following participation. The most common reason cited for such increases were improved confidence and improved skills obtained through education. While the participation results reported in the present study indicate more positive outcomes, with 22 of 29 women interviewed at follow-up suggesting their participation had increased, given the qualitative, exploratory nature of the research, comparing results seems to provide little value in this context. However, through providing insights regarding the types of cycling women were interested in and able to participate in post education, the present study adds additional depth with respect to this aspect of participation.

The final section of the chapter focused on barriers and supports discussed by women, in follow-up interviews, that continued to impact their cycling participation after they had participated in education sessions. Such findings revealed that scope exists to provide additional supports to women in a variety of forms. Social support, development and mentorship opportunities, improved road infrastructure and actions to target cyclist and driver culture were identified as areas requiring action, to help ease the transition of beginner women into cycling. While barriers and supports were found to vary somewhat between cycling forms, these influences were found to be influential across all forms of cycling. As such, it was established
that integrated action to target all forms of cycling collectively, at entry level, are required. Such recommendations are further developed in the final chapter, where conclusions and implications are outlined. While a range of collective influences and recommendations were considered in Chapter Six, strategic recommendations related to specific stakeholder groups are proposed in the final chapter.
CHAPTER 7: CONCLUSIONS AND IMPLICATIONS

7.1 INTRODUCTION

The present study examines socio-ecological influences on Australian women’s cycling participation, in the context of cycling education. Physical inactivity is identified as a global health issue, with significant relevance to the Australian population. Cycling is presented as a versatile form of physical activity which can provide opportunities for recreational, commuter, and/or, organised forms of cycling participation for a range of purposes. It is noted that rates of cycling participation in Australia are typically lower than in parts of Europe, suggesting room for growth exists. Furthermore, a significant gender disparity in cycling participation is identified, with more Australian men engaging in cycling, than women.

With limited academic research having focused on women’s participation, the present study sought to better understand influences on women’s cycling participation in Australia. Furthermore, gaps in the literature indicate a need to examine influences on different forms of cycling. A multidisciplinary, integrated conceptual framework was developed for the purposes of the research inquiry. Cycling education courses were used as the context for the study, given existing research indicating that women often reported a lack of cycling skills and confidence as barriers to participation. As such, the research examined influences on participation, and the role of education in addressing key cycling barriers reported by women. Chapter Seven reflects further on the study findings, summarising and providing strategic recommendations. Such recommendations are grounded in theory, drawing on the conceptual framework and built on recommendations presented in Chapter Six. Theoretical contributions are discussed, implications for method and practice are explained, and study limitation and opportunities for future research are also outlined.
7.2 REFLECTING ON THE RESEARCH PROBLEM

Four research questions were posed in the present study to achieve the overall aim to examine socio-ecological influences on Australian women’s cycling participation, in the context of cycling education. RQ1 related to socio-ecological influences on women’s participation in different forms of cycling. RQ2 and RQ3 focused on examining motivations for cycling education participation and perceived outcomes reported by female participants. The final research question sought to consider additional strategic action that could be taken to support women’s cycling participation in Australia. The following section will reflect on findings with respect to RQ1. Following this, results related to RQ2 and RQ3 are revisited. RQ4 is then further expanded on, in which further strategic recommendations are proposed and discussed.

7.2.1 Influences on Cycling Participation

Influences on women’s cycling participation, with a focus on entry-level participants, were examined particularly emphasising motivations, barriers and supports of participation. Different forms of cycling along the sport development continuum were examined to better understand factors that influence different forms of cycling. General influences (those common to all forms of cycling) were generally consistent with existing research. However, the exploration of variations between participation forms highlighted some interesting patterns. Study participants were motivated to cycle for exercise and health benefits and to feel a sense of enjoyment and/or empowerment associated with cycling. Major participation barriers related to a perceived lack of skills and confidence, along with poor cycling infrastructure and a need to interact with traffic in attempts to cycle. Many women were deterred by rain and hills, and supported by friends, family members and/or colleagues who in many cases encouraged them to cycle. Faster riders, particularly males, were of major concern with women often not wanting to cycle near them or be passed by them at high speeds on roads or paths. Generally,
the culture of cyclists and drivers in Melbourne and Sydney was considered to be unsupportive of beginner women in their attempts to cycle on roads or paths.

Women liked the idea of commuter cycling for the convenience it provided along with financial and environmental benefits, however a significant range of barriers prevented many women from commuting by bicycle. Negotiating complex traffic environments, negative driver culture, social norms for transport-related cycling (not supportive), difficulty determining a safe route, bike security at the destination, weather variations and difficult terrain held women back from riding for transport. This resulted in a number of women showing an interest, yet not participating in commuter cycling. Those who did report commuting by bicycle noted they had a safe, attractive route available which was a key facilitator of commuter cycling.

Almost all women in the present study expressed interest in recreational cycling; however, time restrictions and limited access to a safe route to access a suitable path made such forms of cycling also challenging for many women. Participants often suggested that recreational cycling could take place in less complex environments (e.g., cycling around a park or on a cycle path), with less pressure to cycle quickly making it a more achievable goal. While women seemed to see commuter cycling as an activity in which they would like to participate regularly (more than once per week), most were satisfied with occasional participation in recreational cycling (less that once per week). Over half of all participants reported engaging in some form of recreational cycling in the months leading up to education participation.

Competitive cycling was not of interest to women interviewed as it was perceived to be too competitive, intimidating and dangerous. This finding was unsurprising given the entry-level nature of study participants and their self-reported lack of confidence. Yet a great deal of interest existed with respect to organised, non-competitive cycling options, including groups, events and touring activities. The social support, risk management and personal challenge elements, when combined with opportunities to exercise and engage in an enjoyable outdoor activity, were
the aspects that motivated women to participate. However, in the present study, feelings of intimidation associated with the involvement of males and fitter participants and a general lack of confidence and awareness of program options restricted participant involvement. Many women wanted to find a suitable group, but had struggled to do so.

Through this exploration of participation influences, the researcher gained a better understanding of the factors that supported and constrained women’s participation in cycling, with a particular focus on entry-level cyclists. Such an understanding reinforced the logic of examining cycling education as an intervention to encourage women’s cycling participation in Australia. Considerations related to cycling education are reviewed in the following section.

7.2.2 Cycling Education

Cycling education was identified as a potential intervention to encourage women’s cycling participation in Australia, given that existing research suggested that key cycling barriers reported by women related to perceived lack of skills, confidence and concern for safety. The researcher examined motivations for enrolment and outcomes reported by participants. Motivations generally related to building skills, knowledge and confidence, with an ultimate aim of managing risks associated with cycling, enhancing cycling enjoyment and opening up new cycling participation opportunities through such skill, knowledge and confidence gains. Study participants explained that such motivations for education enrolment were generally related to the increasing complexity of bike technology, complex cycling environments, intimidation from faster cyclists, and an inability to improve skill without assistance. Many of these women stated what they wanted to achieve through education, although they generally approached courses with a limited idea as to what course participation would involve.

Participants appreciated the skill development opportunities, individualised feedback, safe and controlled learning environments, and the local nature of programs in most cases. They appreciated meeting other women who were just as
apprehensive on their bikes as they were, which in some respects appeared to normalise participants’ lack of skills and confidence in their minds. Most women in the present study explained that they improved their skills, knowledge and confidence through education. Many discussed enhanced cycling enjoyment as an outcome of education; however, risk management and new participation opportunities (other desired outcomes) were often partially determined by other socio-ecological influences.

Post education (at follow-up), participants stated that unpredictable traffic and faster, intimidating cyclists remained as key concerns. Women interviewed seem to need assistance beyond education sessions to continue building skills and confidence, with further learning and development opportunities through organised groups and mentorship opportunities. Cycling education appears to provide a low cost way to assist entry-level women to better understand how to navigate existing terrain and infrastructure. In a number of cases, women suggested that assistance in learning how to safely mount and dismount the bike, cycle through roundabouts, perform hook turns and understand road rules as a cyclist had helped them in negotiating their neighbourhoods. However, several still seemed to need further assistance, particularly regarding changing gears effectively and negotiating cycle lanes and paths. As such, cycling education seems to provide an effective initiative to support women’s introduction into cycling, yet, they require additional support (ongoing development opportunities), to assist them to better manage existing infrastructure through skill, knowledge and confidence development. While a long term-plan for encouraging cycling may revolve largely around infrastructure changes, in the interim, assisting women to understand their rights as cyclists, and to improve skills and confidence, may help them to safely navigate cities such as Melbourne and Sydney using existing infrastructure.
7.3 STRATEGIC RECOMMENDATIONS: ENCOURAGING WOMEN’S CYCLING IN AUSTRALIA

As noted in the preceding section, cycling education was well received by women in the present study and it helped most feel more comfortable cycling in many respects. As such, one key recommendation from the present study is that a greater degree of emphasis should be placed on increasing access to, and improving awareness of cycling education programs (including efforts to address the negative stigma that appeared to be associated with such programs). This should be reflected through strategy and policy development and funding allocation. Cycling education seems to provide a cost-effective way for people to gain confidence using existing infrastructure, meaning that it has the potential to empower women to increase their participation in cycling.

In Chapter Six, basic recommendations were provided with respect to actions required to encourage women’s cycling participation in Australia (see Table 6.11). Such proposed actions, at the individual level, relate to providing ongoing mentorship, support and encouragement to assist women in mastering complex cycling skills, planning routes, selecting bikes and knowing which cycling organisations could best meet their needs. With an emphasis on physical and social environments, recommended action relates to safe cycling infrastructure (separation from cars), culture change amongst drivers and cyclists (more inclusive and accepting of beginner females), the establishment and promotion of appropriate cycling groups for women, and integrating bicycle stores into efforts to engage women. Action is recommended to target the apparent confused and/or negative perceptions held in relation to cycling education.

In further building on these recommendations, stakeholder collaboration opportunities were also identified. This is in line with the discussion in Chapter Two, and the contention presented by Rowe et al. (2013), where the proposed integrated conceptual framework was suggested to provide structure in efforts to identify such opportunities. In examining the landscape of cycling delivery in Australia (see
Chapter Two), there appear to be numerous bodies supporting cycling. Federal and state governments have cycling strategies. Local councils, recreational cycling bodies and groups, and sport and recreation-related cycling groups also support and encourage cycling participation. There are often similar yet differing (or even competing) agendas and interests. However, ultimately, increasing the number of women on bikes in any capacity and for any purpose seems to serve a greater agenda, which is of potential benefit to all stakeholder groups. It was noted in Chapter Five that a range of influences impacts all forms of cycling. As such, collaboration across stakeholder groups appears to offer potential benefits in efforts to support women’s cycling in Australia.

Women interviewed generally saw recreational cycling bodies such as Bicycle Network Victoria and Bicycle New South Wales as approachable for their needs. In many cases, participants were first drawn to a bicycle store where they purchased a bike, although many did not receive the service or assistance required. They were often met by sales assistants who were focused on more advanced forms of cycling and failed to understand the needs of entry level women, or use terminology they could understand. Furthermore, additional assistance with learning to adjust the bike or operate it was generally not offered to customers. Women who were in the process of getting back into cycling or trying cycling for the first time, generally perceived local cycling environments to be intimidating. Things had changed since they were fearless children who could ride on footpaths, where less traffic and fewer major highways interrupted their cycling adventures. As such, many women were left with a bike, not knowing how to use it or where to safely ride it, nor having appropriate people to ride with or teach them (i.e., social support).

For study participants, many came across education years after purchasing a bike and/or making their first attempt to commence cycling. Education provided them with a good starting point, but they had often lost years of cycling opportunities getting to this point and subsequently sought ways to continue their development in supportive environments, beyond education sessions. BUGs, cycling clubs and Cycling Australia (and related state-based associations) were not always considered
to be supportive groups or organisations in early cycling inquiries, with some participants not being aware of the existence or role of some of these stakeholder groups at all. Women seemed intimidated by many aspects of cycling, making the initial contact with stakeholders particularly problematic. Within the cycling context, the establishment of, and/or connections between, cycling education providers, social riding groups and retailers seems to offer opportunities to close gaps in women’s participation.

It appears that some women could benefit from a single, approachable, contact point which might introduce them to an established network where various forms of support and advice could be made available. An ideal scenario could see a cycling retailer or store which caters for beginner female riders offering more support, assistance and basic advice on bike selection and maintenance, less on derailleurs, crank sets and chain rings, with cycling clothing other than Lycra available. The store could be connected to an education provider or offer its own courses. There would also then be access to beginner level, social riding groups and events (short distances, limited hills), with opportunities to progress from there as their skills and confidence developed. Ideally, a female cycling hub or network might exist which would focus on stakeholder collaboration to ensure that women feel comfortable asking questions, purchasing relevant products and learning from professionals.

The network described above and demonstrated in Figure 7.1 could focus on establishing connections between cycling retailers, education providers and social riding groups. Advice could be offered in this context to help beginner women work towards participating in the form of cycling they saw as appealing. In this regard, many of the recommendations outlined in Table 6.11 (see Chapter Six), could be incorporated into one network. Additional options within this network might include bike access schemes, mechanical workshops and advice, links to bicycle roadside assist services (such as that provided by the Royal Automotive Club of Victoria, RACV), assistance with planning routes and learning how to select appropriate roads to use for cycling, a range of recreational cycling events, and touring holiday opportunities, amongst other options. Essentially, whether women
entered this network through a retailer, cycling group, education provider, referral, or online search, packages and/or membership options could be developed which essentially offer beginner women the practical development opportunities they need, in safe, supportive environments.

The network could help to prevent entry-level women from arriving at a bicycle shop, purchasing a bike, then attempting to ride it only to be put off by their lack of skills and confidence. Rather than seeing their bike sitting in the shed and feeling dejected, new participants would have the option of being connected with a network where they could sign up for education courses and/or access regular group rides, thus establishing a social support network. This aligns strongly with results discussed in Chapter Six, which indicated that social support seems to play a key role in women’s cycling participation in Australian cities such as Melbourne and Sydney. When reflecting further on such results, these supportive cultural elements and networks often seem to be lacking as women in the present study attempted to commence (or recommence) cycling as adults. Links with recommended female-friendly or beginner bike stores could also help to make entry-level women feel more comfortable learning about the possible equipment options available.

The proposed delivery structure, which might incorporate membership options, challenges traditional thinking in cycling. Clubs, perceived by study participants as being focused on competitive cycling, were not attractive places for novice female riders. Clubs and competitive cyclists were generally seen as being in a different league to cycling education participants and cycling fast, in a competitive manner which was not something of interest to beginner cyclists who lacked confidence. Providing a base structure, network, or, hub for beginner women to join, feel a part of and draw on in their cycling pursuits, could offer such women less threatening forms of engagement through which their participation could be supported.
Figure 7.1: Supporting Women’s Participation: Recommended Action
The proposed network concept (and associated membership or ‘product’ structure), seeks to break down existing recreation, commuter and competitive cycling divides to support all forms of participation collectively. This seems somewhat in line with the approach currently being taken in by British Cycling (2013b). In this UK model, commuting, social cycling groups, and events are considered in a progressive developmental pathway. Women are welcomed at all stages of the participation pathway “as far as they want it to take them” (British Cycling, 2013b, p. 4).

The British Cycling constitution states that the organisation exists to “encourage, promote, develop and control the sport and pastime of cycling in all its forms amongst all sections of the community” (British Cycling, 2011, p. 215). While Cycling Australia’s constitution states that the organisation exists to “develop, manage and control the sport of cycling in Australia” (Cycling Australia, 2008, p. 1). These statements further highlight the emphasis British Cycling places on general participation in cycling, along the continuum. While Cycling Australia, despite its increasing level of interest in general participation as outlined in Chapter Two, seems to be predominantly supporting the sport of cycling, particularly in high performance contexts. Other forms of cycling are more comprehensively supported by separate cycling bodies along with private and public stakeholders.

When examining funding and thus the capacity of these two organisations, it was noted that British Cycling will receive £31 million over the next four years (2013-17) from UK Sport, for high performance initiatives (UK Sport, 2013), and £32 million over four years, predominantly for participation initiatives (Sport England, 2013). Cycling Australia will receive A$8 million over two years (2013-14), predominantly for high performance action, with limited resources for participation-related initiatives (Australian Sports Commission, 2013). There appear to be many opportunities for Australian cycling stakeholders to look to more collaborative efforts for the good of communities and the sport of cycling collectively. The fragmented delivery model which currently exists seems to inhibit progress at community level in particular.
The results of the present study indicated that through education, women’s skill, knowledge and confidence development often helped them to feel more confident when cycling. However, further development opportunities were sought in a number of cases. In Chapter Six, forms of social support (Heaney & Israel, 2008; House, 1981) were discussed as imperative in the context of women’s cycling learning, development and general participation. As such, introducing a women’s cycling network which could provide advice, support, training, groups, bicycle products and equipment, presents as a strategic action to collectively support women’s participation across different forms of cycling.

This action essentially takes the cycling developmental pathway to a new, more extreme level, thus providing additional opportunities for Cycling Australia to further capitalise on its investment in the AustCycle program to engage entry-level women. The current developmental pathway provided by Cycling Australia promotes club participation and talent identification as the bottom levels of the pathway (Cycling Australia, 2011a). The foundation support advocated in this thesis, well below club participation and talent identification stages, supports Australian policy (Commonwealth of Australia, 2010, 2011) in its intent to encourage active participation by Australian women, with options for upward movement through the pathway, if desired (whole-of-sport approach). For most participants in the present study, a women’s cycling network would have provided them with most of the support they required (beyond infrastructure and weather changes, amongst other physical environmental considerations), with entry into a competitive pathway being an unlikely outcome. However, with all forms of participation supported through one initiative, entry-level women would be able to follow the path they desired, if and as their cycling ability, confidence and interest grew.

The current Australian cycling strategy (Austroads, 2010) focuses on promotion, integrated planning, safety and infrastructure. Cycling cultural issues and social support do not seem to be major areas of focus in the current plan. Victorian and New South Wales cycling strategies (New South Wales Government, 2010; Victorian Government, 2012) include a minor focus on education and social issues related to
cycling, yet scope exists for more organised social support networks to be established to encourage and support women’s continued learning, development and participation in cycling. Bauman et al. (2008) advocated this through their emphasis on not only infrastructure, but on sending messages that promote cycling, providing training to build confidence and using events to provide supportive environments for novice riders, for example. The authors discuss ‘cycling-friendly cities’, indicating the need for positive cultural and social environments with respect to cyclists. This aligns with the recommended actions associated with the research presented in this thesis.

When comparing the Australian approach to women’s cycling to that taken in the UK, there appears to be a stronger emphasis in the UK on supporting all aspects of the cycling sport development continuum (British Cycling, 2013b). That is, it recognises the value in commuter cycling, non-competitive events and social riding groups. British Cycling focuses on providing a suitable suite of options with the challenge being “to make it as inviting and easy as possible for [women] to get involved and support their interests along the whole of the participation and performance pathway” (British Cycling, 2013b, p. 4). The present research identifies ways that Australia can similarly focus on supporting women, perhaps engaging a broader range of stakeholder groups in the process. As such, scope appears to exist to establish an agency which facilitates collaboration across stakeholder groups, towards the overall goal of supporting women’s cycling participation in Australia.

7.3.1 Expanding on Recommendations: Considering Stakeholder Action

The practical recommendations discussed in the preceding section were guided by the conceptual framework. Furthermore, reflecting on the literature in analysing data helped to conceptually ground the findings. It was noted that through exploring socio-ecological influences on different forms of cycling participation, recommendations could seek to identify points for strategic collaboration and for individual stakeholder action. Rowe et al. (2013) discussed how the integrated
framework could potentially be used to “build a picture of the entire cycling participation landscape” (p. 11) to examine action required from a whole-of-sport perspective, to support participation along the sport development continuum. This was one focus of the present study.

In the preceding section, Figure 7.1 highlighted opportunities for collaboration that exist in efforts to engage more Australian women in cycling generally. Table 7.1 below uses the conceptual framework to further summarise influences and offer additional information to guide strategic action. Factors that influenced all forms of cycling, and those that specifically impacted some forms of cycling (context-specific cycling behaviour) are shown. It should be noted that women did not typically discuss policy issues directly (beyond those noted in Table 7.1). Participants more frequently discussed physical environmental issues which relate to policies indirectly. Thus physical environments were often seen as the cause of issues, with women reflecting less on the policies and regulations underpinning such issues. The cycling network initiative discussed in the preceding section seeks to link into common issues such as skill deficiencies, limited knowledge and confidence; social support, the role of mentors, intimidation; and traffic/cars, to help make women’s introduction to cycling for any purpose feel more supported.

Given the strong overlap of influences across different cycling forms along the sport development continuum, the cycling network discussed in the preceding section is proposed to collaboratively address multiple barriers. This can be seen as aligning more strongly with the whole-of-sport style of strategy proposed by British Cycling (2013b). Stakeholders discussed in Chapter Two have been examined (considering their core functions and objectives) with a general indication of their cycling involvement and emphasis summarised in Table 7.2. Competitive cycling bodies, such as Cycling Australia and respective state organisations (those with a large role in competitive cycling) may need to consider women’s fear of cycling fast (and related injury concerns), lack of interest in competing, and intimidation from male participants, along with the general influences outlined in Table 7.1, in efforts to
encourage women into the sport. This provides a strategic response, based on findings outlined within the context of the conceptual framework.

**Table 7.1: Socio-Ecological Influence - Different Forms of Cycling**

<table>
<thead>
<tr>
<th>Socio-Ecological Factors</th>
<th>Sport Development</th>
<th>Community Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comp. Cycling</td>
<td>Organised: Non-Comp.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recreation Cycling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Commuter Cycling</td>
</tr>
<tr>
<td><strong>Individual</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence/ self-efficacy</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Skill</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cycling knowledge</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bike maintenance/ mechanical knowledge</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Fitness</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bike access</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Motivation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Knowledge of cycling options</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Male intimidation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Commitment</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cost</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Time</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Fear of going fast</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Personal competitive nature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bike transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance on bike</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carrying things</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport options</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social support/mentors</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Faster cyclists (cycling culture)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Male intimidation (cycling culture)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>People to ride with (similar level)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Social norms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driving culture</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Physical Env.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weather</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Terrain (hills)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Traffic/cars</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Appealing route options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to safe paths</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bike security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End of trip facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental awareness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Night/Dark</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Policy/ Regulatory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organised group options</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Pavement riding laws</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Traffic speed limits</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Car supporting laws / policies</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
Table 7.2: Stakeholder Involvement

<table>
<thead>
<tr>
<th>Organisation/ Category</th>
<th>Organised: Comp</th>
<th>Organised: Non- Comp</th>
<th>Recreational</th>
<th>Commuter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austroads</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Australian Bicycle Council (ABC)</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>State and Territory Governments</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Recreational Cycling Bodies</td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>National and State Cycling Organisations</td>
<td>High</td>
<td>Moderate</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Cycling Promotion Fund</td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Amy Gillett Foundation</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>AustCycle</td>
<td>Limited</td>
<td>Limited</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Bicycle User Groups (BUGs)</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Cycling Clubs</td>
<td>High</td>
<td>Moderate</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

Organised, non-competitive cycling stakeholders (particularly BUGs, along with bodies that focus on providing cycling events, such as Bicycle Network Victoria and Cycling Australia) seem to be presented with a range of opportunities. First, emphasising and facilitating social support aspects of cycling events and groups, and restricting the incidental competitive, Lycra-related intimidation forces (male-dominated, competitive cycling culture) perceived by study participants and discussed by Fullagar and Pavlidis (2012). Focusing on flexible options that limit commitment, cost, equipment and the need for extensive travel to access groups and events appears necessary. Generally increasing access to suitable groups, focusing on group and event culture to ensure that women feel supported and capable, and engaging in the social aspect of cycling more fully, are all opportunities that align with the influences highlighted in Table 7.1.

Those stakeholders focused largely on recreational cycling (Austroads, ABC, governments, recreational bodies such as Bicycle Network Victoria, Cycling Promotion Fund and AustCycle) could focus more specifically on assisting women to find suitable ways to transport their bikes or be able to safely access cycle paths from their homes. Commuter cycling-related stakeholders (Austroads, ABC, governments, recreational bodies, Cycling Promotion Fund, Amy Gillett Foundation
Infrastructure that promotes high separation from cars, re-consideration of pavement cycling restrictions, traffic speed limits, policies which support cars over cyclists (e.g., allowing cars to park in bike lanes), driver culture, and end-of-trip facilities (amongst other individual factors) seem to be priorities in this specific context.

While reflecting further on Table 7.1, Table 7.3 has been included to summarise strategic action related to socio-ecological environmental factors, along the cycling development continuum. It appears that to engage more women in cycling for community development outcomes (development through sport), a particular focus should be placed on physical environments through supportive infrastructure, policies and providing safe, appealing route options. When focusing more on sport development outcomes (development of sport), a range of social factors related to intimidation and culture, and individual factors related to time, fear of riding fast and lack of interest in competition were largely emphasised by participants. These may need to be addressed along with providing more supportive, attractive, accessible options which limit the need for competition and pace initially, while focusing on empowerment, achievement and social aspects, with very gradual progression and development points available.

The present section sought to demonstrate how combining socio-ecological theory and concepts from sport development has assisted in establishing a framework that may be useful in informing whole-of-sport approaches. Moreover, this may assist cycling stakeholders to focus strategically on collaborative and individual actions to support women’s participation in Australia, particularly at entry-level. When reflecting on such findings, it seems that British Cycling (2013b) is increasingly embracing approaches similar to those advocated in this chapter in many respects.
Table 7.3: Strategic Recommendations - Guided by the Conceptual Framework

<table>
<thead>
<tr>
<th>Strategic Action</th>
<th>Competitive Cycling</th>
<th>Organised: Non-comp</th>
<th>Recreational Cycling</th>
<th>Cycling for Transport</th>
</tr>
</thead>
</table>
| Address women’s: | • Fear of cycling fast and sustaining injuries. | • Providing achievable, realistic challenges for women - low fitness requirements, social atmosphere, realistic distances, and support from others. | • Assist women to find ways to transport their bicycles easily to paths. | Focus on:  
  • Infrastructure: High degree of separation from cars.  
  • Pavement cycling restrictions.  
  • Traffic speed limits.  
  • Policies which support cars over cyclists (e.g., allowing cars to park in bike lanes).  
  • Driver culture and knowledge of cyclist road rules.  
  • End of trip facilities.  
  • Social cycling norms. |
|                   | • Lack of interest in competition. | • Reduce impact of male competitive influences. | • Focus on making paths more accessible from all homes (or assisting people to find ways to access paths). | |
|                   | • Intimidation from male members and participants. | • Provide regular social riding options that are accessible, appealing, fun, with low commitment and cost required. | • Address cycle path culture and etiquette (cyclist overtaking at high speeds). | |

**WOMEN’S CYCLING NETWORK**

- **Social Support**: Networks of cycling education providers, social riding groups and cycling retailers
- **Cycling Infrastructure**: Separation from cars
- **Stakeholder collaboration**: More integrated approaches to support women (easier entry into cycling)
- **Cycling culture**: Cycling accessible to all, less intimidation
7.4 IMPLICATIONS FOR PRACTICE: INFORMED BY THE CONCEPTUAL FRAMEWORK

When reflecting on the outcomes of the present study, it is noted that a range of socio-ecological factors influenced women’s participation in cycling, with a variety of influences impacting different forms of cycling in different ways. From a participation perspective, the understanding of such influences highlights the importance of social support, confidence and skill development in efforts to engage women in activity. From a cycling perspective, implications for practice relate to the potential to review the way stakeholders interact in efforts to support cycling in Australia. Divisions appear to exist with respect to stakeholder support for transport, recreational, and organised (competitive/non-competitive) cycling. This in many ways seems to inhibit overall cycling participation and the achievement of common goals. Such divides were experienced and discussed by participants in two ways: first, a perceived us-versus-them mentality (entry level women versus competitive males and elite athlete) in sharing paths, roads and participating in events; Secondly, women’s perceptions of some stakeholder groups as unapproachable reinforced such divides (Bicycle Network Victoria supportive of entry level needs, while Cycling Victoria, bike stores, clubs and in some cases BUGs as less supportive).

When considering sport development practices, the participant ‘attraction’ process (prior to retention and the nurturing of talent), focuses on specific practices such as providing development programs, modified sports, facilities, promotions, management and events to attract participants (Sotiriadou, Shilbury, & Quick, 2008). In the case of cycling, a wide variety of stakeholders potentially contributes to such attraction components. As noted earlier in the Chapter, retailer engagement may play a key role in establishing links with participants given that women in the present study typically discussed purchasing a bike as one of their initial steps in attempting to participate in cycling (for any purpose). If they did not purchase a bike, a number visited bike stores in search of information or equipment (often being disappointed at feeling overwhelmed or intimidated in such stores, or
need to rely on male support). By using this opportunity as one key way to
engage women and direct them to appropriate support networks, their
development may be enhanced, thus potentially serving to assist women’s
participation in the form(s) of cycling of interest. Facilities are discussed as a key
component of the attraction phase from a sport development perspective
(Sotiriadou et al., 2008). It may also be useful for sports which require specific
equipment (such as cycling) to explore opportunities for retailer engagement,
where, along with the sale of a sport or recreational product, links to relevant
resources, opportunities, or networks could be made available.

Further related to cycling practices, the women’s cycling network described earlier
in the chapter may require the establishment of a specific agency which takes
control of such action. The agency would seek to engage stakeholders in developing
initiatives that would collectively target Australian women (and potentially men and
children, depending on the approach) and support their participation in the manner
described. When reviewing the stakeholder groups mentioned in Chapter Two and
in the preceding section, no single stakeholder seemed to have the capacity to
facilitate collaboration along the sport development continuum described
(competitive cycling participation through to transport-related cycling). The
Australian Bicycle Council (operating on behalf of Austroads, encompassing
government, transport and retail stakeholders), Cycling Promotion Fund (businesses
such as manufacturers and wholesalers), along with AustCycle, sport cycling bodies
and recreational cycling bodies (e.g., Bicycle Network Victoria) all seem to be
relevant stakeholders in this regard. As such, an agency could look to engage such
stakeholder groups for the purposes of establishing support networks, with a
particular emphasis on women’s cycling in Australia.

The Australian Government has advocated stakeholder collaboration in efforts to
attract and retain people in sport, active recreation and physical activity.
Stakeholder collaboration is required in efforts to increase participation,
performance, and in using sport to achieve whole-of-government objectives such as
improved health and education along with social inclusion and community
development (Commonwealth of Australia, 2010, 2011). Thus stakeholder engagement is required to serve different aspects of the sport development continuum, as described in the present study. The framework proposed has offered a way for sport stakeholders to examine their current and potential role in contributing to such objectives by playing a collaborative role and delivering on their own strategic objectives. Tables 7.1, 7.2 and 7.3 show that from a practical standpoint, findings can be linked with recommendations relevant to specific stakeholders, or in relation to specific objectives with respect to women’s participation.

While cycling was noted as a multidimensional, complex activity, such findings may be relevant in other sport development contexts. The key role of social support, skill development and appropriate entry level options in sport and recreational activity may be relevant to consider in regards to increasing the involvement of women and girls in sport and recreation. The lack of interest in competition demonstrated by study participants and their complete fear of injury and intimidation from more competent, fit participants, appear to limit women’s interest in organised, competitive sports. Sports are modified to encourage children to develop skills and experience a safe and enjoyable introduction to the sport. It may be necessary to consider how modified versions of sports can better cater for the needs and interests of entry level women. The author notes the specific cycling context, small sample size, and geographic distribution of participants (two Australian cities) as limitations to wider generalisations, however suggests that the findings of the present study may have relevance beyond the cycling context. It seems that in efforts to fully engage women in sport and active recreation, it may be necessary to explore opportunities for providing new and unique sport and recreation offerings rather than repackaging existing products.

Women's Sport and Fitness Foundation and Sports Coach UK (2011) suggested that women are often attracted to the concept of informal sport. This form of activity focuses on providing less structured forms of sport and recreation which emphasise flexibility (times, locations, payment options), convenience, fun and social
atmosphere, along with opportunities to develop skills and improve fitness (Women's Sport and Fitness Foundation & Sports Coach UK, 2011). In such programs, “emphasis should be placed on making the environment welcoming, friendly and sociable, rather than competitive” (Women's Sport and Fitness Foundation & Sports Coach UK, 2012, p. 2). Research was conducted focusing on three established programs including Run England, No Strings Badminton and Just Play Football (Women's Sport and Fitness Foundation & Sports Coach UK, 2011). Women’s perceptions of such programs were examined and results suggested that participants were drawn to the less competitive, less formal, non-club-based forms of participation.

Participants at entry level (beginners), those returning to the sport/recreational activity, and experienced participants were all drawn to informal sports for similar yet slightly different reasons (Women's Sport and Fitness Foundation & Sports Coach UK, 2011). At entry level, flexible options and support from coaches were valued. Those returning found informal sport environments more welcoming, as they were apprehensive to join formal teams of clubs, given their concern regarding their level of skill and fitness. Furthermore, informal settings allowed women to participate with people at their level and progress at their own pace. Finally, experienced participants enjoyed opportunities to engage in the activity in more fun, social environments.

This strongly correlates with the findings of the present study where women liked the concept of improving their skills, confidence and fitness as part of a social group but they did not want to commit to, or feel under pressured to formally join clubs or approach intimidating environments. Examining the attraction of entry level and returning participants to informal sport particularly highlights some of the issues women discussed with respect to cycling groups and clubs. These included being concerned regarding their own skill level, not wanting to commit to a group in case they could not make it and wanting to engage in a social and enjoyable form of cycling. As such, informal sport appears to offer a potential way for sport and
recreation stakeholders to attempt to more comprehensively engage women in the future.

In the Australian landscape, recent research suggests that people are increasingly turning away from traditional club structures towards more individualistic activity pursuits (Hajkowicz et al., 2013). This has obvious implications for sport development in Australia given the potential threat this poses for clubs. Programs such as Cardio Tennis have emerged as innovative approaches to engaging people in sport and recreation-based forms of physical activity (Tennis Australia, 2011). Squash Victoria has implemented a program called ‘Hits and Giggles’ which aims to engage entry level women in skill development activities in fun, social, non-threatening environments to help build their confidence to attend social hitting sessions or play competitively through specific centres (Squash Victoria, 2012). There appears scope for more sport and recreation organisations and providers to re-evaluate their program offerings, to examine potential opportunities to offer additional informal sport-inspired options in an effort to engage women in forms of participation along the development continuum. Such offerings should support skill development in nonthreatening social environments, where competitive elements do not present as a source of intimidation. A similar assessment to that undertaken in the present study could be used to explore the role of stakeholder groups in other sports, with respect to different forms of participation along the continuum.

The conceptual framework developed in this study provides a way for influences and required action to be mapped along a sport development continuum. This framework enabled a better understanding of factors that influence different forms of participation with different strategic outcomes to be ascertained (community and/or development of sport agendas) through this research. As such, the present study provides a framework that may be used in the context of better directing strategic collaborative action to support whole-of-sport objectives in the future. Having considered practical implications of the present study, the section that follows outlines the contributions from a theoretical perspective.
7.5 THEORETICAL CONTRIBUTIONS AND IMPLICATIONS

In Chapter Two, a series of research gaps were identified. The present study contributes to theory by expanding the limited existing knowledge with respect to women’s cycling participation influences and, most importantly, by examining variations across different forms of cycling. The existing research identified with respect to women’s cycling participation indicated that women typically report skills and confidence as barriers to their participation. As such, the research examined cycling education as a potential intervention to encourage women’s cycling. The present study thus provides one of the first research contributions with respect to understanding the role of education in encouraging adults to participate in different forms of cycling, particularly in Australia.

The most significant theoretical contribution relates to the integrated framework developed to guide the research inquiry. The present study sought to explore the complex, multidisciplinary issue of participation by drawing on multiple bodies of research. Discipline areas including health and behavioural sciences, sport sciences, sport and leisure management and in the case of cycling, transport literature, were all relevant in the context of understanding ‘participation’. As discussed by Rowe et al. (2013) “this broad expanse of literature appears to lack continuity and consistency, making it difficult to join a ‘conversation’ in participation, per se” (p. 364). The present study, therefore, contributes to theory by providing a model which aims to bridge gaps between sport management and physical activity research and provide a more all-encompassing picture of influences on participation.

Henderson (2009) suggested “promoting physical activity is vital. Sports are ubiquitous in society and are significant for many reasons. Therefore, identifying additional ways to more fully connect health and sports is essential” (p. 64). It was discussed that Australia seems to increasingly be moving towards a whole-of-sport approach, with calls for alignment and collaboration across stakeholder groups having been made. Yet gaps were found to exist, particularly with respect to
research collaboration. Established models related to physical activity participation were identified as potentially relevant in examining the complex range of participation influences that exist. As such, the present study used the theoretical framework developed to engage with both discipline areas in an effort to support and encourage cross-disciplinary research thinking in the future.

In the process of developing a conceptual framework, the researcher identified a lack of consistency in the way researchers had classified types of cycling. Thus, a means of classifying forms of cycling, aligning with the sport development continuum is achieved through the present study. Such classifications were drawn from the literature and shaped using participant responses. The categories established contribute conceptually by highlighting the nuances within specific sport and recreational activities and aligning such attributes with sport development and/or community development outcomes. While it is possible that not all sports can be broken down and examined in such a way, there seems potential for this approach to conceptually advance thinking with respect to stakeholder collaboration opportunities.

The recommendation regarding the establishment of an agency of sorts which supports collaborative action in cycling also appears to advance sport development thinking. Using the sport development continuum to map stakeholder interests and roles, while also better understanding participation influences, may assist in supporting creative thinking in sport development as we look to new ways of engaging people (particularly women and girls) in sport and active recreation for a multitude of purposes. Development of and through sport are considered important distinctions in the context of sport development planning and action (Shilbury et al., 2008). Yet limited attention appears to have been paid to examining how conceptualising the sport development continuum as a means of engaging stakeholders in collaborative action to support the entire continuum could advance the field of sport development. As such, this research outcome offers an innovative way to advance thinking in sport development.
7.6 IMPLICATIONS FOR METHOD

The present study took a qualitative approach to collecting and analysing data. The lack of academic research focused on women’s cycling participation or cycling education suggested that a qualitative method was necessary to explore complex issues. Furthermore, the development of a conceptual framework drawing on multiple research domains also suggested that an exploratory, qualitative method would be an appropriate approach. The final key consideration regarding the method related to the difficulties associated with accessing participants, given the structure of the AustCycle program (licensee model with independent providers). This resulted in a complex research context. By liaising with AustCycle management and individual providers, a method that suitably supported the gathering of relevant data while also being sensitive to stakeholder needs was developed through several phases of reflective planning.

The general qualitative method employed was informed by three established research methods including ethnography, phenomenology, and case study method. This approach drew on aspects of each of the aforementioned methods to provide a way to gain the rich data required while also allowing the researcher to fully engage with the research context. Furthermore, this method allowed the researcher to respond to the relevant dynamics associated with individual participants, providers, teachers, course materials and locations. The flexible nature of the qualitative design allowed the method to evolve as the research problem evolved.

Additional influences could be explored in response to issues emerging from earlier stages of data collection processes. For example, an increased emphasis on discussing and understanding women’s perceptions of their experiences in bicycle stores, and examining stakeholder groups such as members of BUGs, emerged in response to issues identified in earlier research phases. In pursuit of gaining an in-depth understanding of factors that influence Australian women’s cycling participation, with a focus on the nuances between cycling forms, a qualitative approach effectively facilitated the development of such understanding. As such, a
general qualitative design, drawing on three established qualitative methods was deemed to be a successful and appropriate way to examine the research issues identified.

With respect to methodological issues associated with data triangulation, as advocated by Stake (2010), the researcher examined the research phenomenon multiple times, from multiple angles, drawing on multiple sources of information. Drawing on interviews with participants and key stakeholders, in addition to collecting observational data and drawing on program-related documents, the researcher believes they achieved an “in-depth understanding of the phenomenon in question” (Denzin & Lincoln, 2005, p. 5). As such, in the context of a complex qualitative research design, triangulation played an important role in strengthening the quality of research findings.

In the process of mapping participation influences along the sport development continuum, with the end goal being to better inform strategy and stakeholder action, qualitative research offered a useful approach. Further research may wish to extend this to a more confirmatory approach, as highlighted later in the chapter. This would allow findings to be explored on a larger scale in broader contexts. While qualitative methods provided a means of addressing the research questions, a purely qualitative method in some ways limits the generalisability of the research. As such, limitations of the research are considered in the section that follows.

7.7 STUDY LIMITATIONS

As outlined in Chapter One, a series of factors limit the generalisability of the present study findings, the first of which relates to the qualitative research design and sampling procedures. It was noted that a qualitative method was selected to enhance the researcher’s capacity to understand complex issues in depth. The number of aspects this study sought to examine leant itself to qualitative inquiry. As such, 33 women from two Australian cities formed the study sample. Furthermore, sampling took place in cycling education courses and perceptions of non-
participants, women from rural areas and other Australian cities were not captured. Therefore, study findings cannot be considered representative of the perceptions of all Australian women. However, the in-depth nature of the inquiry meant that key issues were explored in detail. Reflecting on these findings in the context of existing research can help to shed further light on possible implications beyond the sample, related to women’s cycling in Australia more generally. This is in line with Yin’s (2011) concept of analytic generalisation discussed in Chapter Three.

Additional study limitations related to the variation that existed in the length of time that lapsed between conducting initial and follow-up interviews for different participants. This was a situational constraint which did not appear to significantly impact results, given the depth with which participant responses were examined qualitatively. Perhaps a more significant influence related to the timespan of the study (data collection took place over an extended period) which resulted in seasonal variation between participants. That is, women participated in courses throughout the year, with courses and follow-up interviews taking place in varying seasons. Given the significant impact of weather discussed with respect to all forms of participation, a controlled design where all women participated in courses at the same time and were followed up at the same time, would have been preferable. However, logistical constraints made this impossible and the researcher was willing to sacrifice such consistency for depth in understanding.

The variation in research processes between Melbourne- and Sydney-based participants also presented as a limitation. While attempts were made to arrange observations in Sydney, such observations did not take place as a consequence of situational constraints. The research may have benefitted from a more consistent approach where the researcher could observe courses offered by each provider. However, through discussing course components with Sydney participants and the provider, a general sense of activities engaged in and instructional style could be gained. Many similarities appeared to exist between approaches taken by Melbourne and Sydney providers, with the AustCycle model further indicating that a degree of consistency was likely to exist. As such, this was not considered to be a
major issue in the present study and it is not suggested that this significantly impacted study outcomes. The researcher took additional steps to build rapport with Sydney participants in interviews, to better get to know participants and make them feel comfortable with the research processes prior to conducting the interviews.

The further limitation related to the first contact with participants being made in or after their cycling education sessions. This meant that women were asked to speak of their participation behaviour and interests, along with the perceived influences retrospectively, recalling their situation prior to participation in education. Attempts were made to control this limitation by speaking with women in education courses (where possible) and listening to their personal introductions to gain a sense of their pre-education situation. Furthermore, ensuring interviews were conducted at the earliest possible time post education participation further assisted to limit the changes in responses over time.

A final limitation exists with respect to data analysis coding procedures. Given the nature of the research as a component of a PhD study, coding was primarily conducted by the student researcher. While a seconder coder would have ideally been used, give the volume of data collected, this was not deemed to be possible. The primary coder used rigorous methods, as discussed in Chapter Three and relied on sources of information ranging from interview data to observational notes and documents. This was deemed to be the most appropriate way to manage the analysis process given the nature of the project and the budget available.

While a series of limitations restricted the generalisability of the research findings, given that the purpose of the study was to examine complex issues surrounding women’s cycling participation, such limitations did not compromise the overall research intent. However, study limitations, along with methodological implications resulted in a number of potential future research opportunities. These are now considered.
7.8 FUTURE RESEARCH OPPORTUNITIES

A range of opportunities for future research emerged as a result of the present study. Firstly, cycling education was found to have a valuable role to play in the context of encouraging women’s participation. Future research could examine the desired and achieved outcomes discussed in Chapter Six, to gain a larger-scale understanding of the relevance of the study findings in the context of Australian cycling education participation. Cycling education longer-term outcomes could also be examined by developing a longitudinal design which might follow education participants (and perhaps non-participants) over time to examine the long-term benefits derived from participation in cycling education. Finally, gender comparisons might be appropriate to compare the usefulness of education as an intervention to encourage cycling in Australia amongst men and women.

With respect to cycling influences, it seems that quantitative approaches could also be used to examine influences on different forms of women’s cycling participation, using the findings presented in this thesis as a guide for instrument design. Such an approach could seek to explore influences including a larger sample size, examining both education participants and non-participants. This could assist in extending the present findings by considering a wider population group to further advance understanding regarding the merit of a cycling collaborative agency. Furthermore, BMX and mountain biking (additional forms of cycling) were not specifically considered in the present study as a component of the cycling development continuum (given the focus of AustCycle program on other forms of cycling, and the research time and budget constraints). This is an area future research may wish to build on, examining the placement of such cycling disciplines on the continuum and how women’s needs could additionally be supported in this regard.

With respect to the proposed conceptual framework, scope exists for the framework to be used to examine other sport and recreational activities and determine its applicability in alternate contexts. The researcher would encourage that such inquiries should commence with qualitative phases, given the benefits the
present study has derived from such an approach. Essentially, the research presented in this thesis could be used to increasingly open the lines of communication between sport management and development researchers and physical activity researchers in an attempt to enhance understanding of participation. While the framework presented in this thesis provides one example as to how discipline knowledge could be integrated in the context of participation, additional opportunities exist. As such, further research could focus on exploring such opportunities for cross-disciplinary collaboration as we seek to better understanding the factors that influence participation and how best to support participation.

7.9 CONCLUDING STATEMENT

The present study qualitatively examined influences on Australian women’s cycling participation and the potential benefit of education courses in encouraging women to cycle. Given the complex, cross-disciplinary nature of cycling as a form of active participation (with bodies of research spanning multiple discipline areas), an integrated conceptual framework was developed to aid the research inquiry. This framework brought together a model from physical activity literature (socio-ecological model) and concepts from sport development (community sport development continuum), to establish a framework that could assist in understanding the vast array of factors impacting women’s cycling participation in Australia.

Through this inquiry, factors influencing women’s cycling participation were ascertained, with overlaps and variation identified with respect to different forms of cycling. Cycling education was found to be a beneficial intervention to help build women’s skills, knowledge, and confidence; however, many additional actions seem necessary to further support women’s transition into cycling beyond education sessions. It was noted that safe infrastructure was imperative, which appears to be acknowledged by levels of government and advocacy groups. Yet additional opportunities to target individual and social barriers through strengthening social
support networks and providing forms of mentorship do appear to exist. These factors seem to feature less prominently in cycling initiatives and strategies.

A number of recommendations were made focusing on increased partnerships between cycling education providers, social riding groups and cycling retailers in efforts to encourage women’s cycling participation in Australia. The conceptual framework and study results were also used to extend recommendations to direct action related to key stakeholder groups. It was suggested that the establishment of an agency to support stakeholder collaboration in cycling may be necessary to direct and achieve the collaborative action advocated in this thesis. This presents as a new direction in the context of cycling and sport development thinking in many respects.

This research also highlighted that a range of fundamental issues may exist with respect to the way we conceive sport (i.e., competitive nature), as we look to engage more women and girls in sport and recreation in Australia. Women’s seeming aversion to competition (either institutionally imposed, or socially imposed as a product of the influence of other competitive participants), and dangerous activities (potential for injury), while having a desire to receive health benefits and opportunities to socialise, perhaps suggest that traditional thinking with respect to sport and sport development may need to be re-examined. There appears to be scope to expand options beyond traditional sporting club structures to service the needs of this underrepresented group (females) in sport and recreation participation circles.

In conclusion, the present study demonstrates that collaboration across the physical activity and sport participation domains is both possible and beneficial for understanding. As the Australian government looks to enhance stakeholder collaboration and focus on whole-of-sport approaches, sport management and development researchers are encouraged to collaborate with other discipline areas such as physical activity, to further enhance understanding and provide strategic direction with respect to participation.
REFERENCES


Cycling Promotion Fund, & Heart Foundation. (2013). Women and Cycling Survey: Cycling Promotion Fund & Heart Foundation


Devers, K. J. (1999). How will we know "good" qualitative research when we see it? Beginning the dialogue in health services research. Health Services Research, 34, 1153-1188.


284


Pucher, J., Dill, J., & Handy, S. (2010). Infrastructure, programs, and policies to increase bicycling: An international review. Preventive Medicine, 50(Supplement 1), S106-S125.


APPENDICES

Appendix I: Initial Interview Guide - AustCycle Participants

PLSC
Confidentiality
Recording interview
Right to pass on questions

A. SPECIFIC TO INTERVIEW 1:
1. Background:
   Age, work, education, suburb of residence, family structure (children, partner), parents, siblings growing up etc. current level/type of cycling participation.
2. Discuss your past, present and desired participation in the following forms of cycling?
   - Recreation
   - Transport
   - Organised, non-competitive (e.g. event cycling, groups)
   - Competitive
3. Why did you enrol in cycling education?
4. How did you find the AustCycle program?
5. In what forms of cycling are you interested in participating in the future (how would you like your cycling involvement to change through cycling education participation)?

B. STANDARD DISCUSSION TOPICS FOR ALL INTERVIEWS
1. What do you feel motivates you to ride a bicycle?
What do you feel holds you back from riding a bicycle?
Areas to explore:
   - Individual factors: Confidence, skills, attitudes, resources available, motivation, enjoyment, employment status, education, age, sex.
   - Physical environment: Roads, paths, storage facilities, workplace/school infrastructure.
   - Policies/Regulations: Road rules, helmet laws,
   - Social factors: Friends, family, networks, social/cultural norms
2. Discuss barriers and motivations with respect to the four categories of cycling.
3. Tell me about how supportive you feel Sydney/Melbourne is in regards to cycling in the following ways:
   - Physical environment (e.g. roads, paths, storage facilities, workplace/school infrastructure)
   - Policies/Regulations (e.g. road rules, helmet laws)
   - Social factors (friends, family, social networks)
   - Individual factors (confidence, skill, attitudes)
4. How do you feel about the following forms of cycling (if not already sufficiently covered)?
   - Recreation
   - Transport
   - Organised, non-competitive (e.g. event cycling, groups)
   - Competitive
5. What would need to change for you to be interested in more organised forms of cycling such as event and/or sport-related cycling?

Other issues:
- Why did you stop cycling as a child?
- What did you expect from education program?
- Partner’s involvement in cycling.
- Bike shops and outlets for cycling support.

C. **SPECIFIC TO POST-PARTICIPATION INTERVIEW**
1. How was the session? And what did you do in the session?
2. What did you learn?
3. What was most valuable?
4. What was least valuable/ unnecessary?
5. What was missing?
6. How (if at all) did the program change your opinions towards any aspect of cycling?
7. Were expectations met?
8. How did you find the program?
   - Timing
   - Cost
   - Location
   - Course materials
   - Instructor
9. What has changed since participating in cycling education?
   - Perceived barriers?
   - Motivators?
   - Attitudes?
   - Behaviour?
10. What do you feel led to these changes?
11. What are your intentions with cycling in the future?
12. How will what you learned in education assist you to achieve your cycling goals in the future?
13. What interest do you have in further education in the future?
Appendix II: Follow-Up Interview Guide - AustCycle Participants

A. SPECIFIC TO FOLLOW-UP INTERVIEW
1. What has changed since participating in cycling education?
   - Perceived barriers?
   - Motivations?
   - Attitudes?
   - Behaviour?
2. What do you feel led to these changes?
3. How long lasting do you believe these changes will be and why?
4. How do these changes impact your intentions to cycle in the future?
5. How many of your changes occurred as a result of education? – What would have happened without education?
6. Bike shops/ buying cycling-related materials (experiences)?
7. How often do you currently participate in different forms of cycling?
8. How often would you like to participate in different forms of cycling
   a. Discuss why you have/ have not been able to achieve your cycling goals.
9. If you could wave a magic wand to remove all barriers – what would the cycling env. be like?
10. How has education experience changed you?
11. Would you recommend cycling education to other people?

B. STANDARD DISCUSSION TOPICS FOR ALL INTERVIEWS
1. What do you feel motivates you to ride a bicycle?
   What do you feel holds you back from riding a bicycle?
   Areas to explore:
   - Individual factors: Confidence, skills, attitudes, resources available, motivation, enjoyment, employment status, education, age, sex.
   - Physical environment: Roads, paths, storage facilities, workplace/school infrastructure.
   - Policies/Regulations: Road rules, helmet laws,
   - Social factors: Friends, family, networks, social/cultural norms
2. Discuss barriers and motivations with respect to the four categories of cycling.
3. Tell me about how supportive you feel Sydney/Melbourne is in regards to cycling in the following ways:
   - Physical environment (e.g. roads, paths, storage facilities, workplace/school infrastructure)
   - Policies/Regulations (e.g. road rules, helmet laws)
   - Social factors (friends, family, social networks)
   - Individual factors (confidence, skill, attitudes)
4. How do you feel about the following forms of cycling (if not already sufficiently covered):
   - Recreation
   - Transport
   - Organised, non-competitive (e.g. event cycling, groups)
   - Competitive
5. What would need to change for you to be interested in more organised forms of cycling such as events and/or sport-related cycling?
Appendix III: Interview Guide - Stakeholders

PLSC
Confidentiality
Recording Interview
Right to pass on questions

1. Background on organisation you work for and their role in promoting cycling participation.
2. What is your role in the organisation?
3. What is your role in promoting cycling participation?
4. How important do you feel women’s cycling participation is?
5. What barriers/obstacles do you face in promoting women’s cycling participation?
6. What programs/initiatives have you been involved in or seen that have promoted cycling participation (amongst women?). Effectiveness?
7. What motivates women to cycle in your opinion?
   a. Transport
   b. Recreation
   c. Organised (non-competitive)
   d. Sport
8. What do you feel holds more women back from participating in cycling?
   a. Recreation
   b. Transport
   c. Organised (non-competitive)
   d. Sport

Areas to explore:
- Individual factors: Confidence, skills, attitudes, resources available, motivation, enjoyment, employment status, education, age, sex.
- Physical environment: Roads, paths, storage facilities, workplace/school infrastructure.
- Policies/Regulations: Road rules, helmet laws, social/cultural norms

9. What role does cycling education play in women’s cycling participation?

10. Tell me how supportive you feel Melbourne and Sydney are in regards to cycling in the following ways:
- Physical environment (e.g. roads, paths, storage facilities, workplace/school infrastructure)
- Policies/Regulations (e.g. road rules, helmet laws)
- Social factors (friends, family, social networks)
- Individual factors (confidence, skill, attitudes)
- Bike shops and outlets for cycling support.
- Networks and cycling opportunities

11. What needs to change in order for more women to be involved in cycling for:
   a. Recreation
   b. Transport
   c. Organised (non-competitive)
   d. Sport

12. If you had unlimited funds and could implement any initiatives or strategies you liked, what would you do to encourage more women to cycle?
Appendix IV - PLS and Consent Form - Organisation (AustCycle)

PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO:  AustCycle

Date: XX

Full Project Title: Women’s Cycling Participation in Australia: A Case Study of Cycling Education

Reference Number: BL-EC 43-11.

I have read and I understand the attached Plain Language Statement.

I give my permission for staff and patrons of AustCycle to participate in this project according to the conditions in the Plain Language Statement.

I have been given a copy of Plain Language Statement and Consent Form to keep.

The researcher has agreed not to reveal the participants’ identities and personal details if information about this project is published or presented in any public form.

I agree that

1. The institution/organisation MAY / MAY NOT be named in research publications or other publicity without prior agreement.

2. I / We DO / DO NOT require an opportunity to check the factual accuracy of the research findings related to the institution/organisation.

3. I / We EXPECT / DO NOT EXPECT to receive a copy of the research findings or publications.

Name of person giving consent (printed) ………………………………………………………

Signature ……………………………………………………… Date  …………………………

If mailing, please send to:

Katie Rowe (Student Researcher)
School of Management and Marketing
221 Burwood Highway
Burwood VIC 3125
katier@deakin.edu.au
Appendix V - PLS and Consent Form - AustCycle Participants

PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO: Interview Participant

Plain Language Statement

Date: XX

Full Project Title: Women’s Cycling Participation in Australia: A Case Study of Cycling Education

Principal Researcher: Professor David Shilbury

Student Researcher: Ms. Katherine Rowe

Associate Researcher(s): Dr. Lesley Ferkins and Dr. Erica Hinckson

Reference Number: BL-EC 43-11.

You are invited to take part in a research project looking at factors that influence women’s cycling participation. The project will also focus specifically on cycling education and the potential role cycling education may play in encouraging more women to become involved in cycling.

With your consent, participation in this study will involve an interview focusing on your perceptions of factors that influence women’s participation in cycling. In these interviews, you will be asked to discuss factors that you feel encourage and discourage women from participating in different forms of cycling (such as recreational, transport related, or more organised forms). You will also be asked to describe your involvement in supporting cycling participation in Australia.

The results of this research may be used to assist the student researcher, Ms. Katie Rowe, to obtain a Doctor of Philosophy (PhD) degree, and may be published in academic journals and in the media. Individuals will not be identified in any publication, and personal details will not be disclosed to any parties outside the research team. The possible benefits of this research include an increase in understanding of factors that encourage and discourage women’s participation in different forms of cycling and the potential role of cycling education in encouraging women to cycle.

If you decide to participate in this research, you may choose to stop the interview at any point, or withdraw your involvement from the research at any time. We wish to voice record the interviews. If you do not wish this to occur, we will take handwritten notes of the interview. Data will be stored securely for a period of five years after final publication. It will then be destroyed. Once the research project has been completed, you will be sent a research report and (upon request) a copy of the PhD thesis.

This research is being partially funded by the Faculty of Business and Law at Deakin University. Approval to undertake this research project has been given by the Human Research Ethics Committee of Deakin University. If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact: The Manager, Office of Research Integrity, Deakin University, 221 Burwood Highway, Burwood Victoria 3125, Telephone: 9251 7129, Facsimile: 9244 6581; research-ethics@deakin.edu.au. Please quote project number BL-EC 43-11.

Participation in this study is voluntary. If you do not wish to take part you are not obliged to do so. Deciding not to participate will not affect your relationship with the researchers, Deakin University or any AustCycle.
representatives. If you decide to participate, having read this form, please sign the attached consent form. You may keep a copy of this Plain Language Statement for future reference.

If you require further information or if you have any problems concerning this project, you can contact either the student or principal researcher:

Ms. Katie Rowe (Student Researcher)
School of Management and Marketing
221 Burwood Highway
Burwood VIC 3125
katier@deakin.edu.au

Professor David Shilbury (Supervisor)
School of Management and Marketing
221 Burwood Highway
Burwood VIC 3125
shilbury@deakin.edu.au
## Appendix VI - Participant Details

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Age</th>
<th>Home Location</th>
<th>Bike Access?</th>
<th>Rode as a Child?</th>
<th>Education Level</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Trish</td>
<td>52</td>
<td>SIW</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>N</td>
</tr>
<tr>
<td>2</td>
<td>Kelly</td>
<td>37</td>
<td>SIW</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>Y</td>
</tr>
<tr>
<td>3</td>
<td>Ellen</td>
<td>45</td>
<td>SIW</td>
<td>Yes</td>
<td>Yes</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>4</td>
<td>Maxine</td>
<td>47</td>
<td>SIW</td>
<td>Yes</td>
<td>Yes</td>
<td>1</td>
<td>N</td>
</tr>
<tr>
<td>5</td>
<td>Jodie</td>
<td>33</td>
<td>SIW</td>
<td>No</td>
<td>No</td>
<td>0</td>
<td>Y</td>
</tr>
<tr>
<td>6</td>
<td>Marie</td>
<td>30</td>
<td>SIW</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>Y</td>
</tr>
<tr>
<td>7</td>
<td>Andie</td>
<td>25</td>
<td>SIW</td>
<td>Yes</td>
<td>Yes</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>8</td>
<td>Jacinta</td>
<td>72</td>
<td>MN</td>
<td>Yes</td>
<td>Yes</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>9</td>
<td>Lisa</td>
<td>54</td>
<td>MN</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>Y</td>
</tr>
<tr>
<td>10</td>
<td>Miranda</td>
<td>58</td>
<td>MN</td>
<td>Yes</td>
<td>No</td>
<td>1, 2</td>
<td>Y</td>
</tr>
<tr>
<td>11</td>
<td>Kate</td>
<td>32</td>
<td>MN</td>
<td>Yes</td>
<td>Yes</td>
<td>1, 2</td>
<td>N</td>
</tr>
<tr>
<td>12</td>
<td>Andrea</td>
<td>30</td>
<td>MN</td>
<td>Yes</td>
<td>Limited</td>
<td>1</td>
<td>N</td>
</tr>
<tr>
<td>13</td>
<td>Karen</td>
<td>39</td>
<td>MN</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>Y</td>
</tr>
<tr>
<td>14</td>
<td>Lorraine</td>
<td>54</td>
<td>MN</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>Y</td>
</tr>
<tr>
<td>15</td>
<td>Mindy</td>
<td>53</td>
<td>MN</td>
<td>Yes</td>
<td>Limited</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>16</td>
<td>Amy</td>
<td>68</td>
<td>MN</td>
<td>Yes</td>
<td>Yes</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>17</td>
<td>Leanne</td>
<td>41</td>
<td>MN</td>
<td>Yes</td>
<td>Yes</td>
<td>1, 2</td>
<td>Y</td>
</tr>
<tr>
<td>18</td>
<td>Peta</td>
<td>45</td>
<td>MN</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>Y</td>
</tr>
<tr>
<td>19</td>
<td>Veronica</td>
<td>34</td>
<td>MN</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
<td>Y</td>
</tr>
<tr>
<td>20</td>
<td>Penny</td>
<td>61</td>
<td>ME</td>
<td>Yes</td>
<td>Yes</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>21</td>
<td>Jacque</td>
<td>42</td>
<td>ME</td>
<td>Yes</td>
<td>No</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>22</td>
<td>Debbie</td>
<td>51</td>
<td>ME</td>
<td>Yes</td>
<td>Yes</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>23</td>
<td>Lauren</td>
<td>51</td>
<td>ME</td>
<td>Not suitable</td>
<td>Limited</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>24</td>
<td>Caitlyn</td>
<td>48</td>
<td>ME</td>
<td>Yes</td>
<td>Limited</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>25</td>
<td>Rhonda</td>
<td>52</td>
<td>ME</td>
<td>Yes</td>
<td>Yes</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>26</td>
<td>Colleen</td>
<td>67</td>
<td>ME</td>
<td>Yes</td>
<td>Yes</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>27</td>
<td>Alana</td>
<td>24</td>
<td>ME</td>
<td>Not suitable</td>
<td>Yes</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>28</td>
<td>Sarah</td>
<td>67</td>
<td>ME</td>
<td>Yes</td>
<td>Limited</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>29</td>
<td>Martine</td>
<td>76</td>
<td>ME</td>
<td>Not suitable</td>
<td>Yes</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>30</td>
<td>Hailey</td>
<td>52</td>
<td>ME</td>
<td>Not suitable</td>
<td>Yes</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>31</td>
<td>Carla</td>
<td>53</td>
<td>MSE</td>
<td>Yes</td>
<td>No</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>32</td>
<td>Millie</td>
<td>40</td>
<td>MC</td>
<td>Yes</td>
<td>No</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>33</td>
<td>Lynne</td>
<td>45</td>
<td>MC</td>
<td>Yes.</td>
<td>No</td>
<td>0, 1</td>
<td>Y</td>
</tr>
</tbody>
</table>

Note: **SIW** = Sydney inner western suburbs; **MN** = Melbourne northern suburbs; **MC** = Melbourne city suburbs; **ME** = Melbourne eastern suburbs; **MSE** = Melbourne south eastern suburbs.

Education levels: 0 = Introductory/learn-to-ride; 1 = Basic skills; 2 = On-road

Follow-up = Did they participate in follow-up interview?