Learning through Public Involvement in Environmental Assessment: A Transformative Perspective

by

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Abstract

Despite its complexity, environmental assessment (EA) is no more than a process to incorporate common-sense concerns about community futures into decisions that will affect the future. Interpreted broadly, common-sense concerns include scientific, technical, social, economic, legal, and political considerations. As such, EA has significant potential as a planning tool in the pursuit of sustainability, particularly when, through feedback mechanisms, common-sense concerns about community futures become modified in response to EA activities. That is, the potential of EA as a tool for sustainable development is heightened when learning occurs based on EA planning and decision-making experiences.

To explore this assertion, the dissertation examined two questions: (1) To what extent do EA processes in Canada facilitate learning by individuals who participate in the process? and (2) What are the forms of and constraints on learning by individuals who participate in EA processes? My theoretical framework was transformative learning and my methodology was constructivist, largely post hoc, and involved a phased case study design. My data collection methods were document review, participant observation, and semi-structured, qualitative interviews. The first phase involved an extensive examination of EA public involvement systems in 11 Canadian jurisdictions. The second phase encompassed intensive case studies of Maple Leaf's $120 million hog processing facility in Brandon, Manitoba; the Salmon Aquaculture Review, a strategic assessment from British Columbia; and, the Green Commuting Project, a local climate change initiative from Winnipeg, Manitoba.

This study has established that the extent to which EA, as it is currently structured, facilitates mutual learning among participants is quite limited; in other words, EA processes deviate substantially from the ideal conditions of learning. EA in Canada remains largely within a comprehensive, synoptic paradigm dependent upon bureaucratic and technocratic institutional arrangements dominated by instrumental rationality. Further, learning through participation is constrained by a complex web of barriers to public involvement. Overall, these factors establish that the emancipatory potential of participation in environmental

assessment is highly restricted. Opportunities for all participants to define their own meanings, intentions, and values are limited, which restricts opportunities to self-define broader goals and community futures. Further, the limits on emancipatory potential impinge learning through critical self reflection on socio-political presuppositions, and restrict opportunities for collective mobilization in opposition to dominant social forces.

The research also highlighted the extent and importance of informal learning through participation in EA, but questioned the potential of current conceptions of EA as a vehicle for individual learning for sustainable development. Given the restricted emancipatory potential of participation in EA, environmental assessment offers limited potential to further social objectives of sustainability, such as local participation, empowerment, and equity. As well, the nature and incidence of instrumental learning documented in the cases confirm the ongoing dominance of conventional growth-oriented economic approaches. Further, larger contextual variables could counter what participants learn through involvement in EA as it is currently structured.

The primary contribution of the dissertation is to nascent theory linking environmental assessment, learning and sustainable development. The study advocates greater flexibility in EA institutional arrangements to accommodate incremental or transactive approaches to planning and decision making. It also identifies 21 recommendations to policy makers for reform in EA administration and practice. Although some of these reforms have been discussed previously in the literature, they are unique as a package and serve to reorient EA as a forum of learning for sustainable development.

Acknowledgements

Solitary or solidary? Albert Camus posed this question in Exile and the Kingdom. With respect to my dissertation experience, the answer, of course, is both. And although early reflections on my experience focused on the solitary and often lonely aspects, my lasting impressions relate to solidarity, community, and enduring personal relationships. My dissertation, and indeed my entire Ph.D. program, would not have been successful on either personal or professional levels without the intellectual, emotional, and spiritual support of many friends and colleagues. The most important person has been my partner Marlene Lagimodière, whose keen intellect and curiosity helped me deepen many of the ideas explored in this research. As well, her adventurous spirit and strength of character were sources of inspiration, and helped carry us through new and diverse experiences filled with uncertainty.

It goes without saying that the success of graduate student research is dependent on guidance provided by the student's faculty advisor. However, I feel compelled to say that whatever successes I have experienced as a doctoral student can be attributed directly to support and guidance from my advisor, Dr. Bruce Mitchell. Although any shortcomings or errors in this thesis remain solely my responsibility, Dr. Mitchell was instrumental in guiding the dissertation through to completion. His advice touched on everything from the nature of research and substantive issues regarding the study, to editing and referencing. Moreover, he was always accessible, considerate, and patient. I could not have had a better faculty advisor.

I would also like to acknowledge the members of my dissertation committee, who enriched and enlivened the research process. Dr. John Sinclair gave me the initial encouragement to pursue a Ph.D., and provided wise counsel in dealing with the challenges I encountered in my studies. He also provided me with an opportunity to participate in his SSHRC-funded study of critical education in environmental assessment, enabling us to continue our ongoing collaborative research. Dr. Robert Gibson, who was my Acting Advisor during an important time in my residency in Waterloo, honed the critical edge of my work, influencing my

thinking regarding the design of environmental assessment processes and the role of public involvement in environmental management. I also appreciated greatly the reading course we did together, during which we met in unusual venues or strolled about campus discussing critical education and transformative learning. Dr. Susan Wismer, with her background in community development, kept me grounded in a critical perspective, and heightened my concern for the ethical implications of my work. As well, her detailed and thoughtful comments on my first draft improved the dissertation immensely. Finally, Dr. Gordon Nelson, with his vast knowledge of resource and environmental management, encouraged and enabled me to reflect critically on basic presuppositions, and his ideas regarding interactive and adaptive methodologies were highly influential in my work.

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Dedication

To Marlene: Have I told you lately that I love you?

And for my parents, Peter and Violet, great proponents of life-long learning.

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Chapter 1 : Business as usual?

> On the outskirts of Hertford yesterday, I passed a spot where the river's cutting through a rubbish tip – a scree of glass, rust, and polythene like bits of loo paper. All those *things* – Zamphir recordings, yo-yos, xylophones, weedkillers, video games ... hula-hoops, houseboats, gravy boats, golf carts, footballs, fondue sets, drink trolleys, cameras, bottles, beds, airliners – all those splendid Things that made up the sum of the world, which we had to keep on making and buying to keep ourselves diverted and employed – were just garbage-to-be. Ripped, smelted, sucked, blown from the raddled earth; turned into must-haves, always-wanteds, major advances, can't-do-withouts. And *pouf*! A decade later, a season later, it's ashamed-to-be-seen-in, clapped out, white elephant, obsolete, *infra dig*, inefficient, passé, and away it goes to the basement or the bushes or the ditch or the bottom of the sea.
>
> – Ronald Wright, A Scientific Romance, 1997

1.1 Framing the problem

1.1.1 Current patterns of resource use

It is reasonable to expect fair-minded people to disagree on the nature of current patterns of resource use. As Orr (1994) commented, an economist and an ecologist will likely perceive different aspects of reality when observing the state of interactions between human and natural systems. Placing faith in technological change and elastic technical substitution, the economist (at least of the neoclassical variety) may see unlimited potential for economic growth. The ecologist, relying on systems thinking, knowledge of thermodynamics, and a sense of place in the ecosystem, may see an entirely different picture, one of unsustainable resource exploitation, climate change, fragile ecosystems, and alienation between humans and nature.

My research adopted more of the ecological perspective. It accepted that current patterns of resource development cannot be extended to all currently living people, or to future generations (Daly and Cobb 1989; Costanza 1991; Goodland and Daly 1995). Moreover, it accepted that environmental pollution and resource exploitation can be justified under conventional resource development (Goodland et al. 1989) and this is manifest in a diverse array of environmental crises that challenges human and ecological well being:

> If today is a typical day on planet earth, we will lose 116 square miles of rain forest, or about an acre a second. We will lose another 72 square miles to encroaching

> deserts, the results of human mismanagement and overpopulation. We will lose 40 to 250 species, and no one knows whether the number is 40 or 250. Today the human population will increase by 250,000. And today we will add 2,700 tons of chlorofluorocarbons and 15 million tons of carbon dioxide to the atmosphere. Tonight the earth will be a little hotter, its waters more acidic, and... (Orr 1994, 1).

1.1.2 A sustainable future

Just as fair-minded people could reasonably disagree on the nature of current patterns of resource use, they could also disagree on an appropriate vision of the future. Sustainability is a fluid and emergent concept and has attracted considerable discussion and criticism (e.g., Dovers 1993; Sachs 1993). However, internationally it has become the principal aim of environmental policy (Glasbergen 1996), and for many resource and environmental managers it is a legitimate vision of the future (Mitchell 1997). My research adopted the vision of sustainable development as well as accompanying values of equity, empowerment and participation, which are elements of various models of sustainable development, particularly those that follow a three component or a multiple capital framework (Goodland and Daly 1995; Hardi et al. 1997).

If current patterns of resource use are unacceptable, and if sustainability is an appropriate vision of the future, by what means could society move from the present towards the vision? A detailed and comprehensive response to this question was well beyond the scope of this research, but a reasonable survey of the alternatives would likely have included discussions of resource and environmental management, education and learning, and social and political theory (Wilkerson and Edgell 1993; Orr 1994; Michael 1995; O'Riordan 1996). In fact, my research explored selected aspects of each, taking an interdisciplinary approach to individual learning through public involvement in environmental assessment (EA).

1.1.3 Learning through involvement in EA

Despite its complexity, EA "is no more than a process by which common-sense concerns about community futures are incorporated into decisions that will affect the future" (Meredith 1995, 362). Interpreted broadly, common-sense concerns include scientific, technical, social,

economic, legal and political considerations. As such, EA has significant potential as a planning tool in the pursuit of sustainability. This is particularly so when, through feedback mechanisms, common-sense concerns about community futures become modified in response to EA activities. That is, the potential of EA as a tool for sustainable development is heightened when learning occurs based on EA planning and decision-making experiences.

Public involvement in EA is of fundamental importance because it provides potential fora for individual learning for sustainability. Public involvement is also consistent with principles of participatory democracy, improves planning and decision making, helps resolve conflicts, and makes difficult political decisions more acceptable (Pateman 1972; Gibson 1988; 1993; Sinclair and Diduck 1995; Lummis 1996; Mitchell 1997).

The learning function of public involvement in EA is significant because it helps respond to personal constraints on participation, such as lack of knowledge, understanding, or skills (Schibuola and Byer 1991; Regnier and Penna 1996; Sullivan et al. 1996; Diduck and Sinclair 1997b). Learning through involvement could also clarify terms and conceptual models, provide a common base of understanding and, thereby, resolve cognitive conflict of the form described by Dorcey (1986), Mitchell (1995), and others. As well, it could clarify and make explicit the opposing values, interests, options, or actions at the heart of other forms of conflict (see Dorcey 1986). Learning through involvement in EA could also illuminate unknown situations and identify problems and, thereby, reduce ignorance, a form of uncertainty described by Wynne (1992). In addition, it could reveal "causal" chains or intentions in human systems and, thereby, reduce indeterminacy, another form of uncertainty. Finally, education and learning are likely significant to sociopolitical empowerment (Rocha 1997), which involves critical reflection regarding structures of power, cooperative problem solving, and collective social action.[1]

[1] Parts of Section 1.1 were excerpted from a previous publication by the author (see Diduck 1999a).

1.2 Research purposes

1.2.1 My original intent

This research explored connections among learning, public involvement, and environmental assessment. Consistent with the adaptive approach, described in Chapter 3, the research purposes evolved in response to my growing understanding of the research problem. I began my doctoral program with a desire to learn what governments and environmental nongovernmental organizations (ENGOs) in Canada were doing relative to non-formal education for EA participants. I wanted to know if non-formal, adult education could be used (perhaps by resource and environmental managers or radical planners, such as described by Friedmann (1987)) to facilitate public involvement in EA. I also wanted to know what people learned from participating in EA and what their experiences meant for EA reform and the pursuit of sustainability.

1.2.2 The research questions

Following my course work and comprehensive examination, I developed a dissertation proposal with a complex set of broad research questions (Appendix 1). However, once into the investigation, the purposes of the study continued to evolve, ultimately becoming more focused. As described in Chapter 3, the study followed a phased design, and the central research question of the first phase became: *To what extent do EA processes in Canada facilitate learning by individuals who participate in the process?* The central question of the second phase was: *What are the forms of and constraints on learning by individuals who participate in EA processes in Canada?*

The basis for the research questions lies in the hypothesis that the potential of EA as a tool for sustainable development is heightened when, through feedback mechanisms, learning occurs based on EA planning and decision-making experiences. They are supported by the syllogism presented in the ensuing section that emphasizes EA as a form of "civic exploration". The practical import of the research questions is found in their implications for

EA design and the reform of existing processes to better accommodate the learning imperative in the pursuit of sustainability.

1.3 Defining terms and concepts

1.3.1 Environmental assessment

As noted, this research accepts that EA could be an important device in the transition to sustainability. Its significance, however, is affected by how it is conceptualized and defined. Nelson and Serafin (1995) argued that early conceptions of EA were based on the U.S. National Environmental Protection Act of 1969 and are manifestations of a rational, comprehensive planning model. They also argued that EA should be reconceptualized as a type of civic exploration dependent on mutual learning of the participants (Nelson and Serafin 1994). This is consistent with numerous authors who have suggested that a transactive model of planning (Friedmann 1973; 1987) is appropriate in circumstances characterized by uncertainty and change (Christenson 1985; Briassoulis 1989; Mitchell 1997; Cardinall and Day 1998). My research adopted a broad, open, and facilitative conception of EA, consistent with these views.

The research also adopted a broad and anticipatory definition of EA. A variety of definitions is proposed in the literature (e.g., Jeffery 1991; Meredith 1992) and used in the legislation (e.g., Section 2 of The Environmental Assessment Act, R.S.O. 1990, c. E.18, Section 2(1) of The Canadian Environmental Assessment Act (CEAA), S.C. 1992, c.37). Generally, the definitions offer variations on one fundamental theme, the essence of which was captured by the Canadian Environmental Assessment Research Council (1988): EA is a process that requires and facilitates the incorporation of environmental concerns into the planning of an undertaking that has potential significant impacts on existing socioeconomic and biophysical conditions. The Council's definition of EA is adopted in this research with two qualifications. First, that planning is defined broadly to include consideration of the need for and alternatives to the proposed undertaking. Second, that undertaking is defined broadly

and strategically (McDonald and Brown 1995; Partidário 1996) to include plans, policies, and programs.

1.3.2 Public involvement

Along with the importance of EA as a tool for sustainable development, this research also accepted public involvement as a fundamental element of EA. Again, however, the significance and impact of public involvement are affected by how it is conceptualized and defined (Roberts 1998). Public involvement in EA has typically focused on informing or consulting the public, with few opportunities for shared decision making or involvement at normative levels of planning (Roberts 1995). As Mitchell (1997) observed, participation at late stages of planning can easily be perceived as nothing more than tokenism or non-participation, borrowing Arnstein's (1969) language from her ladder of citizen participation. In this research, I took a broader view of public involvement in EA. Conceptually, I viewed public involvement as a sine qua non of open and transactional EA. More specifically, I adopted a modified version of the definition offered by Praxis (1988): public involvement is a process by which the views of all parties interested in an EA agency's decision regarding an undertaking are integrated into planning, including normative, strategic, and operational levels (Smith 1982), and decision making regarding the undertaking.

1.3.3 Education and learning

I adopted a simple and broad definition of education: purposeful activity that facilitates learning (Merriam and Caffarella 1991; Mezirow 1994). Non-formal, adult education was defined as education for adults that occurs outside of educational institutions, such as those activities found in churches, ENGOs and learning networks (Merriam and Caffarella 1991; Leal Filho 1996). Non-formal, adult education can be distinguished from informal adult education, which refers to the experiences of everyday living from which individuals learn something (Sutton 1989; Merriam and Caffarella 1991).

My focus was on learning by individuals, and I adopted a broad, inclusive definition of learning: change in response to identifiable stimuli or information. This is the definition adopted by Parson and Clark (1995) and is very similar to Merriam and Caffarella's (1991) definition: a process through which behaviour is changed (or has the potential to change) as a result of experience.

1.4 Organization and style of the dissertation

1.4.1 A research travelogue

My research was interactive and adaptive in nature, and followed emerging qualitative traditions in education (Maxwell 1996; Merriam 1998), human geography (Nelson 1991), and the social sciences generally (Patton 1990; Creswell 1994; Maxwell 1996; Neuman 1997). Consequently, I made slight modifications to the research questions, design, methods, and data sources in response to opportunities and challenges during the course of the study. In the thesis, I report the results of my research, including the circumstances and motivations for any adaptations made.

1.4.2 Packing your intellectual baggage: literature and methodology

Chapter 2 contains the overall conceptual framework underlying the research questions, a review of related literature identifying gaps filled by this study, and a summary of concepts and theories adopted in conducting the research. Chapter 3 presents the research methodology and discusses research philosophy, overall research design, data collection and analysis methods, data sources, and specific threats to validity and reliability encountered during the research.

1.4.3 Understanding and reflecting reality: results and conclusions

A response to the first research question was developed through investigating EA public involvement systems. The extensive phase of the research, which employed criteria derived from transformative theory's ideal conditions of learning, is presented in Chapter 4. The

extensive phase also yielded results bearing upon the selection of the case studies presented in Chapter 5. The case studies offer a response to the second research question through an intensive investigation of learning by individuals involved in the cases. Conclusions from both phases of the research are presented in Chapter 6, along with their implications for EA design, public involvement, individual learning, and sustainable development.

Chapter 2 : Learning our way out

> To "learn from experience" is to make a backward and forward connection between what we do to things and what we enjoy or suffer from things in consequence. Under such conditions, doing becomes a trying; an experiment with the world to find out what it is like; the undergoing becomes instruction – discovery of the connection of things.
>
> – John Dewey, Democracy and Education, 1916

Section 2.1 presents a summary of how my understanding and conception of the research changed as the program of study for my doctorate evolved. Section 2.2 summarizes the primary theoretical framework adopted in the research, situates the theory in the literature, reviews significant criticisms, and explains why I adopted the framework. Section 2.3 reviews evaluations of EA processes and assessments of public involvement and identifies how phase one of the dissertation complements or advances existent research. Section 2.4 reviews studies relating to various dimensions of individual learning through involvement in EA, as well as research regarding barriers to public involvement and learning in EA. Throughout Section 2.4, the discussion identifies how phase two of the dissertation supplements or develops studies reported in the literature.

2.1 Framing the solution

The starting point for my dissertation was my Master's research, conducted at the Natural Resources Institute, University of Manitoba (Diduck 1995; Sinclair and Diduck 1995; Diduck and Sinclair 1997a; Diduck and Sinclair 1997b). That work explored education and learning in the context of an EA of a major water development project in southern Manitoba, Canada, and presented a framework for non-formal adult education for EA participants (further details can be found in Appendix 2). Through discussions with my thesis committee, it became apparent that this initial framework revealed a need to account more fully for learning processes in adulthood and the forms of knowledge most compatible with social change for a sustainable future. After additional reading and discussion with committee members, I developed a broader contextualization of my research areas. I also presented deeper analyses of the dominant pattern of resource use and the role of participation in

sustainable development. Ultimately, I conceptualized my research in terms of individual learning in environmental assessment (Figure 2.1), which led to the formation of the research questions described in Section 1.1.2.

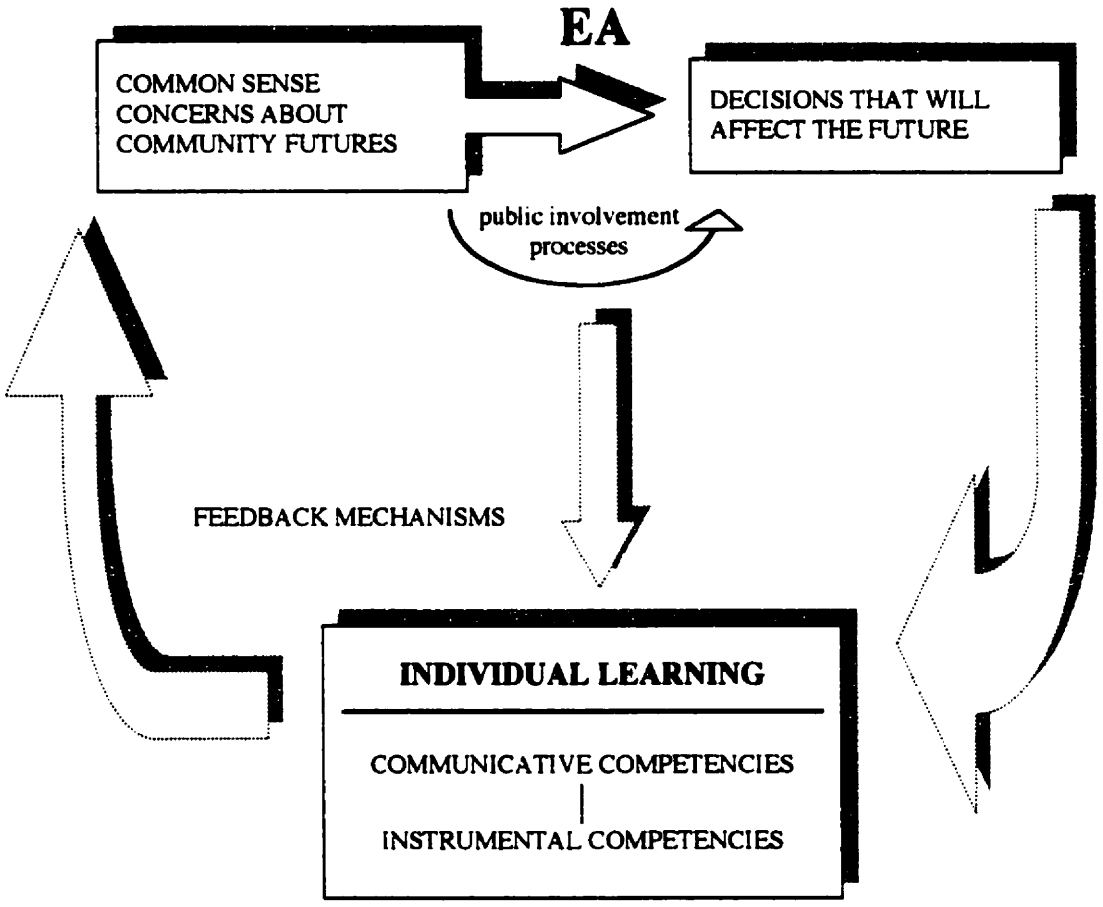


Figure 2.1: A Broad Conceptualization of Individual Learning through Environmental Assessment

2.2 Transformative learning

Transformative learning was the primary theoretical framework adopted in this research. It provided the criteria with which the EA processes were assessed in response to the central research question of phase one. It also furnished the conceptual tools for the analysis used in responding to the second phase research question.

2.2.1 Key theories of learning

Learning is the subject of numerous theoretical explanations, and various typologies of *general* learning theories have been offered (Merriam and Caffarella 1991; Parson and Clark 1995; Mezirow 1996b). Merriam and Caffarella (1991) presented a categorization useful for its insights into *adult* learning. They identified four basic orientations: behaviourist, cognitivist, humanist, and social learning[2] (Table 2.1). Without going into a detailed analysis, transformative learning straddles the line between the cognitivist and humanist approaches. Merriam and Caffarella (1991) also identified three categories of adult learning theories, which further help to contextualize transformative learning. They identified those theories based on the characteristics of adult learners, e.g., andragogy (Knowles 1980) and the CAL framework (Cross 1981, cited in Merriam and Caffarella, 1991). They further identified theories focused on the life situations of adults, e.g., proficiency theory (Knox 1980) and Jarvis' social context approach (Jarvis 1987, cited in Merriam and Caffarella, 1991). Finally, they identified theories that focus on changes in consciousness, and gave transformative learning as an example.

2.2.2 Elements of transformative theory

The following summary is based on Mezirow (1981; 1991; 1994; 1996b), Merriam (1991) and Clark (1993).[3] Mezirow described two forms of learning: instrumental and communicative. Instrumental learning helps the individual control or manipulate the environment. It provides competence in coping with the external world through technical control of natural forces. Communicative learning, pertaining to social interactions, involves trying to understand what someone means when they communicate with you. This often involves values, intentions, feelings, moral decisions and normative concepts. Communicative competence helps the individual negotiate his or her own meanings, intentions and values, rather than merely accepting those of others.

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[2] In this context, social learning does not refer to learning by organizations or institutions, but rather to a body of theories that focus on modeling and other forms of observational learning by individuals in social settings.

[3] Parts of Chapter 2 were adopted verbatim from a previous publication by the author (see Diduck 1999a).

Table 2.1: A Typology of General Learning Theories (Merriam and Caffarella 1991)

	BEHAVIOURISM	COGNITIVISM	HUMANISM	SOCIAL LEARNING
Major proponents	Thorndike (stimulus-response theory) Pavlov (conditioning) Skinner (operant conditioning)	Bode, Kohler, Lewin (Gestalt psychology) Piaget (cognitive development)	Maslow (hierarchy of needs) Rogers (client-centered therapy)	Bandura (observational learning)
Focus of attention	Overt behaviour, which is a measurable response to stimuli in the environment	Internal mental processes Perception, interpretation, meaning of stimuli	Human nature (cognitive and emotional dimensions) Human potential for growth	The social setting in which learning occurs Interaction of cognition, behaviour and environment
Purpose of education	Produce behavioural changes that are consistent with a desired objective or value system	Gain new insights and develop capacity and skills to learn better	Fulfill one's personal potential for growth and development (self-actualization)	Model new roles and behaviour
Role of the teacher	Manipulate reinforcements in the learning environment to elicit desired behavioural changes and extinguish undesired behaviours	Organize the content of learning to affect the learners' cognitive structure	Facilitate the recognition of personal choice and responsibility and the development of the whole person	Models and guides new roles and behaviours
Manifestations in adult learning	Behavioral objectives Adult vocational and skills training	Concepts of intelligence Memory as a function of age Learning how to learn Cognitive development	Self-directed learning Student-centered learning	Modeling Mentoring Socialization Importance of context

Disagreements or problematic assertions in the realm of communicative learning are usually resolved by resort to force, authority, or discourse. Establishing the validity of a problematic assertion through discourse could be emancipatory (i.e., free the learner from oppressive social relations) under the ideal conditions of learning: accurate and complete information; freedom from coercion; openness to alternative perspectives; ability to reflect critically upon

presuppositions; equal opportunity to participate; and, abilities to assess arguments as objectively as possible and to accept a rational consensus as valid.[4]

The theory further suggests that learning occurs through changes (or transformations) in a person's frame of reference. A frame of reference consists of two dimensions: meaning perspectives (broad epistemic, psychological and sociocultural predispositions); and, meaning schemes (specific beliefs, feelings, attitudes and value judgements). Transformation occurs through critical reflection on the underlying assumptions of the various elements of the meaning perspective or meaning scheme. The most significant transformations occur when elements of the meaning perspective change through critical self reflection. These are often precipitated by a disorienting dilemma or a series of smaller transitions, followed by phases such as those summarized in Figure 2.2.

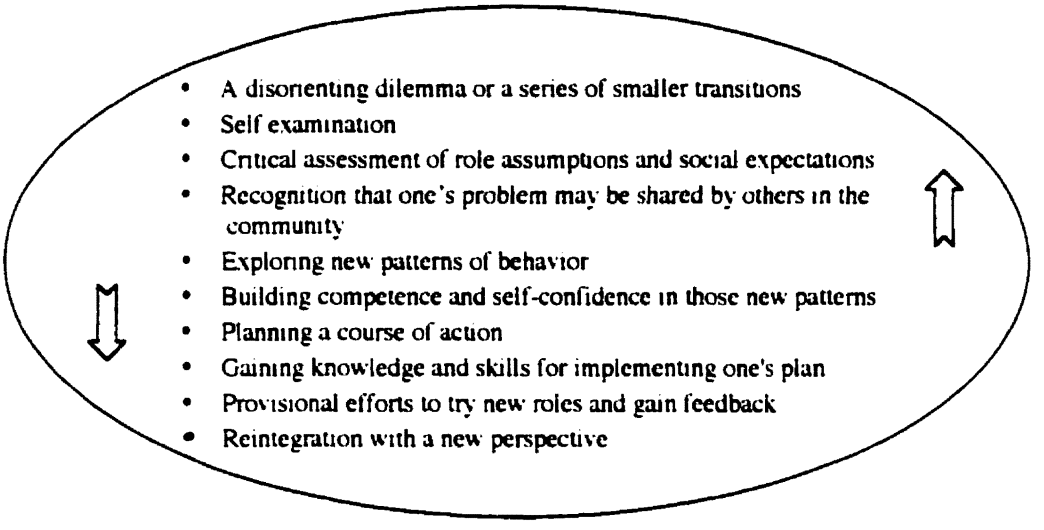


Figure 2.2: A Process of Critical Self Reflection (Mezirow 1981; 1994)

[4] The concepts of objectivity and rationality in the ideal conditions of learning are not discussed at length in the transformative learning literature. However, given the theory's roots in Habermas' ideas of knowledge as social theory (Habermas 1968), a reasonable interpretation is that these concepts relate more to how knowledge is used, rather than to the foundations of knowledge. To say that a statement or an action is rational is to claim that it could be in principle justified in procedures of argumentation. For Habermas, argumentation is a test of the "rationality inherent in communication, making possible the continuance of communicative relations when disputes arise, without recourse to duress" (Giddens 1985, 132).

2.2.3 Criticisms of the theory

Numerous criticisms have been made of transformative learning theory for misappropriation of concepts from Habermas and other critical theorists (Collard and Law 1989; Hart 1990; Pietrykowski 1996). Indeed, the concepts of communicative, instrumental and emancipatory learning are directly based on Habermas' knowledge types (Welton 1993). The criticism was made that although Mezirow borrowed these concepts, he did not incorporate the radical social critique and consequent demand for collective action inherent in Habermas' work.

These criticisms were well founded. In the first major statement on transformative learning (Mezirow 1981), emancipation was equated with developing a frame of reference that is more inclusive, differentiating, permeable, critically reflective, and integrative of experience. These may be characteristics of a "superior" frame of reference but do not necessarily imply emancipation from oppressive forms of social organization, a basic theme of critical theory (Gibson 1986). However, the most recent statements from Mezirow (1994; 1996b) have addressed this concern and have reformulated the concept of emancipatory learning. Frames of reference displaying the above characteristics are now labeled as "more functional". Emancipation is now conceived as a potentiality of transformation in the ideal conditions of learning. This is more in keeping with Habermas' notion of the ideal speech situation, in which he suggested there is potential for emancipation from oppressive social relations (Welton 1993).

Criticisms have also been made of transformative learning theory regarding its linkages with the Freirean concept of conscientization (Collard and Law 1989; Tennant 1994; Pietrykowski 1996). In early forms of the theory, conscientization was equated with transformations in sociocultural presuppositions. As a number of writers noted, conscientization does involve transformations of sociocultural codes, but it goes beyond that. Where Mezirow's concept is personal and may or may not involve action, conscientization is a group experience in which members become critically aware of and challenge dominant ideologies. Conscientization also involves a cycle of action-reflection-action (or praxis) (Heaney 1995). This criticism was well founded but the most recent statements on transformative learning theory (Mezirow

1994; 1996b), aided in part by dialogue through the academic literature, appear to have clarified the distinction between the two approaches.

2.2.4 Reasons for adopting transformative learning

My initial reason for adopting transformative learning was its philosophical and conceptual connections with critical pedagogy. Although this is an aspect of the theory that has been susceptible to critique, many of the criticisms have been addressed. Another reason for adopting transformative theory is that through the ideal conditions of learning, the theory accommodates the social context in which learning occurs. I thought that the ideal conditions provided an excellent starting point for the assessment of EA public involvement processes. Further, many observers have commented that of all the theories of adult learning, transformative theory holds significant potential as a comprehensive explanation of learning in adulthood (Merriam and Caffarella 1991; Merriam 1993a; 1993b). It not only focuses on the process of learning, it attempts to explain how adult learning is different from learning in childhood. Finally, although conceived as a theory of individual learning, transformative theory has significant potential for application to collective action by social aggregates. Rooted in critical pedagogy, transformative theory helps explain the development of sociopolitical consciousness, and therefore offers a framework for exploring linkages between individual learning and social change.

2.3 A learning-focused assessment of EA processes

The central question of the first phase of the research was: *To what extent do EA processes in Canada facilitate learning by individuals who participate in the process?* As Chapters 3 and 4 demonstrate, to answer this question, I undertook an evaluation of selected Canadian processes.

2.3.1 Other evaluative approaches

Although the literature is rich with assessments of EA processes,[5] few have focused on learning-related issues. Rather than learning, the primary foci of EA evaluative research have been effectiveness and efficiency, although several early studies also focused on fairness (e.g., Case et al. 1983; Canadian Environmental Assessment Research Council 1988).

Studies of efficiency have concentrated on issues such as cost effectiveness, economic efficiency, and timeliness (e.g., Canadian Environmental Assessment Research Council 1988; Australian National Audit Office 1993, cited in Sadler 1996; Lee et al. 1994; Rescan Environmental Services 1995; Sadar and Stolte 1996; Canadian Environmental Assessment Agency 1997a; 1997b).[6]

Studies of effectiveness have centered on issues such as methodology (Sadler 1990; Sadler 1996; Rowson 1997), political and cultural settings (Taylor 1984; Hollick 1986; Ortolano et al. 1987; Renwick 1988; Wandesford-Smith and Kerbavaz 1988; Caldwell 1989; Wandesford-Smith 1989), the quality of environmental impact statements (Lee and Dancey 1993; Mathers et al. 1994; Anderson and Sadler 1996, cited in Sadler 1996; Geraghty 1996; Glasson et al. 1996, cited in Barker and Wood 1999; Barker and Wood 1999), and various factors thought to be critical in EA process design, such as the need for a legislated basis for EA, scoping, self-assessment, and discretion in decision making (Lucas and McCallum 1975; Rees 1981; Fenge and Smith 1986; Federal Environmental Assessment Review Office 1988; Jeffery 1991; Smith 1991; Gibson 1992; 1993; Delicaet 1995; Wood 1995; Canadian Environmental Assessment Agency 1996; Doyle and Sadler 1996; Leu et al. 1996; Sadler 1996; Rowson 1997; Bitondo 2000).

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[5] For typologies of EA process evaluations, see Rowson (1997), who offered an analysis based on research methodology, and Sadler (1996), who described three types of process evaluations based on scope of analysis.

[6] It should be noted that efficiency concepts such as those referred to above have also been used as criteria in effectiveness studies (e.g., King and Nelson 1983; Wood 1995; Doyle and Sadler 1996). Also, as numerous writers have pointed out, effectiveness, efficiency, and fairness (or equity) are intricately linked (e.g., Sewell and Phillips 1979; Sadler 1990).

Along with evaluations of EA processes, the literature is also rich with evaluations of public involvement.[7] As above, few of these studies focused directly on learning, examining issues such as methodology (Rosener 1978; Sewell and Phillips 1979; Rosener 1981; Grima and Mason 1983; Grima 1985; Syme and Sadler 1994), power sharing or the degree of citizen control (Arnstein 1969; Westman 1985; Parenteau 1988; Praxis 1988), and representativeness of the participants (e.g., MacLaren 1995; Prystupa et al. 1997).

Despite the foregoing, several evaluations of EA processes and assessments of public involvement have examined learning-related issues. The balance of Section 2.3 reviews these studies and distinguishes them from the purpose and approach taken in phase one of my research.[8]

2.3.2 Provision of information

One set of learning-related issues examined in the literature relates to the provision of information. King and Nelson (1983) used access to and disclosure of information as one of seven criteria in their evaluation of the application of the former federal EA process (EARP) to a hydrocarbon extraction project in South Davis Strait. Criterion indicators included physical access to pertinent studies, translation of relevant documents, and availability of participant funding. Other studies that used similar issues as criteria of EA process effectiveness include Wood (1995), Doyle and Sadler (1996), and Canadian Environmental Assessment Agency (1996). A recent evaluation of shared decision making in land use planning and management in British Columbia examined ten criteria, including sufficiency of resources for participants and accuracy of information (Penrose et al. 1998).

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[7] Valuable early reviews of evaluation frameworks were provided by Sewell and Phillips (1979), Grima and Mason (1983), and Grima (1985).

[8] The studies reviewed in Section 2.3 focus on issues related to learning by individuals, but learning by social collectives (i.e., social learning) has also been the subject of discussion in evaluations of EA processes and assessments of public participation. This literature is not reviewed in here but a brief overview is provided in Appendix 3.

Several studies have focused on a particular dimension of information-provision, namely, readability or understandability of EA documents. Gallagher and Jacobson (1993) evaluated the legibility of 150 environmental impact statements (EISs) produced by seven government agencies in the United States. Concentrating on typography, they used ten criteria developed from the literature: type size, type design, line length, justification, headings, highlighting, spacing, margins, reproduction, and other. Sullivan et al. (1996) assessed the readability of an EIS and evaluated the understanding gained by high school students in Wisconsin from reading the document. In Canada, Shrybman (1983) presented a qualitative evaluation of the readability of an EIS from a Southern Ontario case. Further, a recent study involving the author assessed the quality of EA public guidance documents in Himachal Pradesh, India (Sinclair and Diduck 2000).

Phase one of my dissertation builds on research in this area by adopting access to information as an evaluation criterion and using indicators from several of the above referenced studies, including physical accessibility and understandability. Further, my research advances these studies by grounding its analysis in a comprehensive theory of adult learning, namely, transformative learning. Moreover, the research examines several learning variables over and above access to information.

2.3.3 The educational implications of involvement techniques

Another set of learning issues examined in the literature relates to the educational implications of various public involvement techniques. Numerous studies have provided conceptual frameworks or critical reviews of degrees of public involvement, and many have included education- or learning-related components (Arnstein 1969; Lucas and McCallum 1975; Westman 1985; Praxis 1988; Wood 1995; Doyle and Sadler 1996). For example, Doyle and Sadler (1996) examined degrees of participation as indicators of responsiveness to public involvement, which was one of ten criteria of effectiveness used in their comparative review of Canadian EA processes. They considered five degrees of participation, representing a progression in EA system responsiveness: information dissemination,

consultation, limited participation, broad participation and dispute resolution, and principled negotiation.

Other studies have examined the educational potential of specific public involvement techniques. Important early work was by Glasser et al. (1975), who classified 25 public involvement techniques into six categories and evaluated each technique in terms of communication and education. Communication was evaluated according to six criteria: degree of public contact, degree of impact on decision maker, degree of user sophistication, ease of use and preparation, ability to respond to varied interests, and degree of two-way communication. Education was evaluated according to the following criteria: informing/educating, identifying problems and values, obtaining ideas/solutions, feedback, resolving conflict, and implementing solutions.

More recent studies from the EA literature have examined educational methods as public involvement techniques. Diduck and Sinclair (1997a) catalogued the methods used in a Manitoba case, and assessed them on an ordinal scale based on their congruence with the fundamental characteristics of Freirean methodology. Regnier and Penna (1996) assessed the public education efforts of a non-governmental organization, the Inter-Church Uranium Committee Education Cooperative, during the environmental assessment of three proposed uranium mines in Saskatchewan by using a framework built on critical education and technological literacy concepts.

Phase one of my dissertation complements the studies referred to above. It is largely distinct in purpose and content from the research that offered frameworks of public involvement techniques. Further, it builds on the study by Glasser et al. (1975) by focusing on EA systems rather than specific involvement techniques. Moreover, by relying on a coherent theoretical framework, my research responds to a criticism of the Glasser et al. study that the functions evaluated and the evaluation criteria were selected arbitrarily (Grima 1985). The dissertation is also distinct in purpose from Diduck and Sinclair (1997a) and Regnier and Penna (1996) and advances those studies by offering an extensive analysis of EA processes in Canada. Finally, the dissertation builds on Diduck and Sinclair (1997a) by adopting one

of their assessment criteria[9] and integrating it into a larger set of measures founded on a coherent theoretical framework.

2.3.4 The educational function of involvement

The final set of learning-related issues raised in evaluations of EA and assessments of public involvement pertains to the educational function of involvement. Of the issues reviewed in Section 2.3, this set intersects most directly with the purposes and approach taken in the dissertation.

The educational function of involvement has been discussed as a rationale for (Gibson 1993) and a benefit of participation in EA (Lucas and McCallum 1975; Walsh et al. 1988; Richardson et al. 1993). In addition, several studies have integrated educational effects into larger frameworks for the evaluation of involvement (Homenuck et al. 1977; Godschalk and Stiftel 1981; Smith 1983; Webler et al. 1995; Moote et al. 1997; Schweitzer et al. 1998). An example is the work of Godschalk and Stiftel (1981), who proposed seven criteria for evaluation of public involvement. These included "the public awareness criterion"[10] (how knowledgeable did public participants become about the planning program?) and the "staff awareness criterion" (how much did agency staff members learn from the information and views provided by participants?). Another example is Smith's (1983) approach in which he suggested that evaluation of public involvement could focus on three dimensions of participation: context, process, and outcome. Effectiveness was offered as a component of outcome, and an indicator of effectiveness was the degree of awareness achieved by participants.

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[9] Opportunities for interactive education was an assessment criterion used by Diduck and Sinclair (1997a), but in phase one of the dissertation, this criterion was adapted as an indicator of a distinct parameter, namely opportunity to reflect critically upon presuppositions (see Section 4.1.4.2).

[10] Public awareness has also been used as an analytic concept in critical reviews (or implicit evaluations) of public involvement in EA (e.g., Palerm 1999a; 1999b; Sinclair and Diduck 2000).

A fundamental distinction between most studies offering evaluation frameworks of public involvement and phase one of my dissertation is in the level of analysis to which the frameworks apply. Whereas phase one adopts a process-level of analysis in the evaluation of EA systems, the frameworks reviewed above apply at the level of individual EA cases and require an examination of how participant awareness changed (or what participants learned). Although this level of analysis is used in phase two (and therefore the studies referred to above are reviewed in greater detail in Section 2.4), it represents a different perspective from that which was adopted in phase one.

2.4 Learning by individuals who participated in EA

The central question of phase two of the dissertation was: *What are the forms of and constraints on learning by individuals who participate in EA processes in Canada?* In response to this question, as detailed in Chapters 3 and 5, case studies were conducted and transformative learning concepts were employed in data analysis.

2.4.1 Similar theoretical and conceptual approaches

A transformative framework has not previously been applied to learning through involvement in EA, although it has been applied in a broader land use planning context (Alexander 1994; Alexander 1999). In this one respect then, phase two of my dissertation builds on existing research. It further extends transformative theory into the area of resource and environmental management and furnishes additional empirical evidence regarding the theory.

Phase two also complements a Swiss study that applied a framework similar to transformative learning, using Habermasian critical theory. Focusing on cognitive development and moral development, Webler et al. (1995) examined learning by participants in an environmental assessment of a waste disposal facility in the Canon of Aargau. My research builds on the Swiss study by exploring a broader range of issues, including learning processes and constraints on involvement and learning. It also builds on the study by

examining similar subjects and ideas in an alternative cultural context. This deepens the empirical evidence available for theory testing and development, and expands future opportunities for cross-case generalizations.

2.4.2 Evaluations of public involvement

As noted in Section 2.3.4, numerous frameworks for the evaluation of public involvement have considered the educational function of participation (Homenuck et al. 1977; Godschalk and Stiftel 1981; Smith 1983; Webler et al. 1995; Moote et al. 1997; Schweitzer et al. 1998). The Godschalk and Stiftel (1981) and Smith (1983) studies were reviewed earlier and Schweitzer et al. (1998) reported a similar approach. In this latter inquiry, participants in United States Department of Energy public involvement programs were asked to identify attributes of success and rate their importance. In the end, the authors recommended that evaluations of public involvement programs focus on a set of seven attributes, including whether the Department and the public stakeholders understand each other's concerns.

In another framework that emphasized mutual learning among participants, Homenuck et al. (1977) identified two foci for evaluation of public involvement: the contributions of public participation programs to the problem-solving or planning effort, and impacts of the programs on the continuing goals of the initiating agency. Regarding the former, the authors identified two components: function (what the agency hopes to achieve) and process (how they hope to achieve it). They also identified a number of dimensions along which function and process could be evaluated. One of the dimensions of function was mutual education, and the following measures were offered: did the agency collect new, unknown information about the community? and, did the people learn about agency concerns? e.g., did they have a better understanding of planning and administration? In a slightly different but related approach, Moote et al. (1997) evaluated public participation in a case study of land use planning in southern Arizona using a framework adopted from participatory democracy literature. One of the evaluation dimensions was information exchange and learning. The evaluative criteria were: (1) were all parties encouraged to discuss their interests and values in informal multidirectional exchanges? (2) was collective revision of goals, objectives, and

decision-making criteria encouraged? and, (3) was understanding of interests and values improved?

Phase two of my dissertation supplements and develops the studies referred to above. However, it has a different purpose, namely, the intensive examination of various dimensions of individual learning, rather than the comprehensive evaluation of public involvement. Further, it examines a broader scope of learning-related issues and offers a deeper investigation of most of the issues canvassed.

2.4.3 Forms of learning

Phase two of my dissertation applied a transformative framework by using Mezirow's instrumental and communicative learning as the basic analytic framework to investigate what people learn through participating in EA. And, although few studies have taken a comprehensive approach to learning in EA, several have examined aspects of learning and have revealed empirical evidence on forms or types of learning (Tableman 1990; Frideres et al. 1992; Richardson et al. 1993; Webler et al. 1995; Regnier and Penna 1996; Sullivan et al. 1996; Diduck and Sinclair 1997b). The evidence indicates that primary forms of learning include scientific and technical knowledge, risks and impacts associated with the project, alternatives to the proposed project, and legal, administrative and political procedures. In this area, the EA studies are largely consistent with research in other areas of resource management (e.g., Comings et al. 1981; Merrifield 1993; Alexander 1994; Daniels and Walker 1996; Glasbergen 1996; Guevara 1996; Moote et al. 1997; Marshall 1998; Owen 1998).

The evidence further suggests that important types of learning include insight into one's own interests and perspectives, insight into other interests and perspectives, strategies and methods for communication, and cooperative problem solving skills (Tableman 1990; Frideres et al. 1992; Richardson et al. 1993; Webler et al. 1995; Regnier and Penna 1996). This evidence is consistent with research in other areas of resource management, but the studies of participatory planning forums and environmental dispute settlement also reveal

evidence of negotiation, mediation and active listening skills (Buckle and Thomas-Buckle 1986; Crowfoot and Wondolleck 1990; Owen 1998).

Phase two also relied on the transformative concept of changes in meaning schemes, and as above, the literature reveals indirect empirical evidence relevant to the analytic concept adopted. Several studies suggest the prevalence of cognitive changes in concepts (Tableman 1990; Frideres et al. 1992; Richardson et al. 1993; Webler et al. 1995; Regnier and Penna 1996; Sullivan et al. 1996; Diduck and Sinclair 1997a). These include the development of a more integrated understanding of both social and natural systems (Richardson et al. 1993; Webler et al. 1995; Regnier and Penna 1996). This evidence is largely consistent with the evidence in other areas of resource management (Buckle and Thomas-Buckle 1986; Crowfoot and Wondolleck 1990; Kartez and Bowman 1993; Alexander 1994; Daniels and Walker 1996; Moote et al. 1997; Marshall 1998; Owen 1998).

There is also evidence regarding changes in attitudes, feelings, and beliefs. Webler *et al.* (1995) reported more positive attitudes and feelings toward the community, including the government. However, other studies have revealed that while social cohesion may increase in civil society, members of citizen groups may develop a cynical attitude and feelings of resentment toward state and business interests (Tableman 1990; Richardson et al. 1993; Regnier and Penna 1996; Diduck and Sinclair 1997a). Similar evidence can be found in studies of the development of environmental regulations (Delli Priscoli 1987; McMullin and Nielson 1991), local planning approvals (Taylor 1995), and waste facility sitings (Lynn 1987). A point of contrast regarding social cohesion in civil society was offered by Frideres et al. (1992), who suggested that larger political and institutional barriers in EA could exacerbate tensions in civil society along socioeconomic class lines.

The studies reviewed above provide support and foundation for phase two of the dissertation. And, as in previous sections, my research supplements and advances the literature by examining a broader scope of learning-related issues, deepening the investigation of the issues canvassed, and grounding the inquiry in a comprehensive learning theory.

2.4.4 Constraints on involvement and learning

As noted earlier in this chapter, an advantage of the transformative framework is that it accommodates the social context in which learning occurs. In its description of the ideal conditions of learning and its consideration of critical self reflection on alienating social forms, it recognizes potential social or structural constraints on learning. To contextualize and guide my inquiry in this area during the case studies, a review of research regarding constraints on public involvement in EA (including related learning issues) was conducted.

Few studies have specifically examined constraints on public involvement in EA (Frideres et al. 1992), although several furnish indirect evidence on the subject (Gallagher and Jacobson 1993; Gibson 1993; Richardson et al. 1993; Webler et al. 1995; Kakonge 1996; Regnier and Penna 1996; Stevenson 1996; Sullivan et al. 1996; Diduck and Sinclair 1997b; Nikiforuk 1997). Further indirect evidence is afforded by studies from other resource and environmental management contexts, such as climate change initiatives, environmental dispute resolution, and land use planning (Buckle and Thomas-Buckle 1986; Lynn 1987; Crowfoot and Wondolleck 1990; Kartez and Bowman 1993; Andrey and Hachey 1995; Carpenter 1995; Chociolko 1995; Daniels and Walker 1996; Dotto 2000). Additional insight is provided by secondary sources that identify possible reasons for nonparticipation (or barriers to participation) in EA or other resource and environmental management processes (Praxis 1988; Smith 1993; Wood 1995; Mitchell 1997; Petts 1999)

The ensuing review highlights potential barriers to involvement in EA, as discussed in the above literature. Phase two of my dissertation advances research in this area by providing added direct empirical evidence on the subject. Further, it does so in a systematic manner, situated in the realities of EA participants, interested individuals who did not participate in the case studies, and EA managers from across the country. Furthermore, for the first time, the constraints identified, particularly those pertinent to learning, are integrated into a larger theoretical framework.

2.4.4.1 Information deficiencies

A set of constraints discussed in the literature relates to information deficiencies, including inaccurate, incomplete, and inaccessible information (Praxis 1988; Frideres et al. 1992; Gallagher and Jacobson 1993; Kartez and Bowman 1993; Richardson et al. 1993; Smith 1993; Andrey and Hachey 1995; Carpenter 1995; Chociolko 1995; Webler et al. 1995; Daniels and Walker 1996; Regnier and Penna 1996; Sullivan et al. 1996; Petts 1999). As Petts (1999, 172) commented, active participation is not promoted by "[t]echnical writing styles, the reduction of information to a summary which tends to stress that a development will have no impact, failure to explain how decisions about the project (in particular mitigation measures) have been arrived at, and a poor use of graphics and maps...". Frideres et al. (1992) also identified the timing of information exchange as a potential barrier. They commented that proponents and governments must recognize that "public involvement begins when the first conception of a project reaches a community". It does not begin with the formal information on the project provided by the government or proponent, it begins with "rumor and speculation".

2.4.4.2 Lack of resources

Another set of constraints pertains to lack of resources, including institutional capacity within civil society. In their study of barriers to involvement in the Keephills thermal power plant EA in Alberta, Frideres et al. (1992) observed that community-based publics often lacked resources to create the knowledge they needed to challenge proponent and state positions. A number of other authors have also identified the need for participant funding to address this problem (e.g., Gibson 1993; Smith 1993; Wood 1995), a view advocated by ENGOs in Canada for years (Canadian Environmental Network 1988; Praxis 1988). Related to institutional capacity is the issue of conflicting institutional arrangements, further identified by Frideres et al. (1992) as a barrier to involvement. The authors contended that institutional settings for EAs are products of an ideology favouring hierarchical, bureaucratic arrangements. These typically conflict with structures of the community publics involved in the process, which often operate within the framework of a collectivist ethos.

2.4.4.3 Opportunities to participate

Numerous authors have suggested that broad public involvement is fettered by process deficiencies related to unequal opportunities to participate (e.g., Lynn 1987; Kartez and Bowman 1993; Webler et al. 1995; Daniels and Walker 1996; Marshall 1998; Owen 1998). As Smith (1993, 67) stated, "[r]estrictions in opportunities for participation...act to curtail widespread involvement by individuals in environmental issues". The lack of opportunities to participate could be linked to manipulation or control of the proceedings by one or more of the parties (e.g., Lynn 1987; Kartez and Bowman 1993; Webler et al. 1995; Alexander 1999; Sinclair and Diduck 2001). However, as Praxis (1988, 24) noted, proponents should avoid a common pitfall which is to "consult only those that (sic) are likely to be supportive" of their proposed project. Another issue related to equal opportunity to participate is the representativeness of the active publics. This is an ongoing issue in public involvement practice as Frideres et al. (1992), Mitchell (1997), and others have observed that the interests of active publics, such as ENGOs, may not be representative of the views of inactive publics.

2.4.4.4 Lack of impact on ultimate decisions

Another set of constraints relates to the frequent lack of impact that public involvement has on the ultimate decisions taken. This lack of impact could be linked to the lack of opportunities to have arguments evaluated in a systematic fashion (e.g., Buckle and Thomas-Buckle 1986; Lynn 1987; Crowfoot and Wondolleck 1990; Kartez and Bowman 1993; Webler et al. 1995; Daniels and Walker 1996; Owen 1998). It could also be related to lack of openness to alternative perspectives on the part of the dominant parties in the proceedings (e.g., Richardson et al. 1993; Kagonge 1995; Regnier and Penna 1996; Stevenson 1996; Nikiforuk 1997). Lack of impact upon decisions taken could also signal that the decisions were foregone, and such an interpretation could then further constrain public involvement. Praxis (1988, 21) noted that people will not participate, or choose to participate in other ways, if they "believe that the decision is already made". Similarly, Petts (1999, 172) observed "increasing public alienation when they feel that decisions are made before they are asked to participate".

2.4.4.5 *Lack of motivation or interest*

Finally, a set of constraints discussed in several studies bears upon a person's motivation or interest in becoming involved. For example, people may not understand or be interested in the potential effects of a project. As Praxis (1988, 22) put it, some "[p]eople don't believe that the impact justifies participation" or "are unaware they are affected by a decision". Alternatively, many people may be too busy: "...the inactive public, or the silent majority, are....more focused on coping with issues at work and at home. ... Their lives are full and complicated enough with day to day matters..." (Mitchell 1997, 161). Finally, some people refrain from becoming involved because they believe others adequately represent their interests (e.g., Praxis 1988).

2.5 Summary

This chapter reviewed literature that provides context and an intellectual foundation for my dissertation. It started with an overview of how my understanding and conception of the research changed as my program of study evolved. The next section summarized transformative theory, discussing basic forms (instrumental, communicative), processes (critical reflection and changes in frames of reference), and social contexts (the ideal conditions) of learning. It also situated transformative theory among general learning theories, using a categorization useful for its insights into adult learning. This section also presented criticisms of the theory, including the suggestion that it adopted concepts from critical theory without accepting the radical social critique and demand for collective action inherent in this body of work. At the same time, the section considered how transformative theory has evolved in response to these criticisms. This section ended with a review of my reasons for adopting transformative theory, including the promise it holds for examining linkages between individual learning and social change.

Section 2.3 reviewed literature to identify gaps filled by phase one of the dissertation, and it was revealed that few assessments of EA processes have focused on learning-related issues. Rather than learning, the primary foci of EA evaluative research have been effectiveness, efficiency, and fairness. It was also revealed that few evaluations of public involvement have

focused directly on learning, with most examining issues related marginally to education and learning. One set of learning-related issues examined in the literature relates to the provision of information, including readability or understandability of EA documents. Another relates to the educational implications of specific public involvement techniques. Still another set of learning-related issues focuses upon the educational function of public involvement. Section 2.3, therefore, suggested that phase one of the dissertation is largely distinct in purpose and content from most of the reviewed studies. In addition, it advances many of the studies that examined learning-related issues by grounding its analysis in a comprehensive theory of adult learning. Further, it is distinct because of its comprehensive approach to the learning variables investigated.

Section 2.4 reviewed the literature to identify gaps filled by phase two of the research. I did not discover any studies that used a transformative framework to examine learning through involvement in EA. However, I did find that transformative theory has been applied in a broader land use planning context, and a similar approach, reliant on Habermasian social theory, was applied in an EA case study from Switzerland. Section 2.4 further revealed that there have not been any evaluations of public involvement focused on learning, although several included some consideration of the educational implications of involvement. Section 2.4 suggested, therefore, that phase two of the dissertation complements existing research by extending transformative theory in the realm of resource and environmental management. It also builds on the Swiss case study by exploring a broader range of issues and does so in an alternative cultural context. This deepens the empirical evidence available for theory testing and development, and expands future opportunities for cross-case generalizations. Furthermore, the dissertation has a different purpose than typical evaluations of public involvement, namely, the intensive examination of various dimensions of individual learning, and examines a broader scope of learning-related issues and offers a deeper investigation of most of the issues canvassed.

Section 2.4 also reviewed empirical evidence relevant to the elements of transformative learning theory used in the case studies. This evidence helped in developing the analytic frameworks used in phase two of the research and in identifying gaps in the literature. The

review in Section 2.4 revealed that primary forms of learning through involvement included scientific and technical knowledge, risks and impacts, insight into other interests and perspectives, strategies and methods for communication, and changes in concepts, attitudes, and beliefs. This section also revealed a paucity of empirical evidence regarding constraints on public involvement in EA, although indirect evidence and secondary sources suggested that constraints included information deficiencies, lack of resources, and lack of motivation. Section 2.4, therefore, argued that phase two supplements and advances the empirical studies reviewed. As noted above, the dissertation examines a broader scope of learning-related issues, deepens the investigation of the issues covered, and grounds the inquiry in a comprehensive learning theory. In addition, it furnishes grounded empirical evidence respecting constraints on public involvement.

Chapter 3 : Investigating reality

> When the critical intellect looks at anything carefully, it vanishes. This is as true of the solid substance of bodies as of historical generalizations, of entities such as nations, of epochs such as the Middle Ages, and of subjective matters such as myth. The reason is, of course, that "things" exist only relatively – for a point of view or for convenience of description. Thus when we inspect any unit more closely we find that its structure is more complex and more differentiated than we had supposed. Its variety comes to impress us more than its unity. This is why there is something of the spirit of debunking in all scholarship and scientific inquiry. As a historian of science once put it, "Isn't it amazing how many things there are that aren't so?"
>
> - Alan W. Watts, The Two Hands of God, 1963

> "Well, what may seem like the truth to you," said the seven-teen-year-old bus driver and part-time philosopher, "may not, of course, seem like the truth to the other fella, you know."
>
> "THEN THE OTHER FELLOW IS WRONG, IDIOT!"
>
> - Philip Roth, The Great American Novel, 1973

3.1 The paradigm dialogue

Given the theoretical and conceptual frameworks adopted in the dissertation, my search for a methodology began with a review of constructivist (or interpretist) and critical research paradigms. This review also led to a greater understanding of positivism since variations of positivism, the conventional and dominant research paradigm, were frequently described and critiqued in the literature to help explain constructivist and critical approaches. It also led to my introduction to alternatives such as postmodern and feminist approaches.

My reading related to methodology began with an overview of research in social science generally, but soon focused on paradigms in human geography and education. The ensuing discussion briefly summarizes my understanding of significant issues raised in this literature, particularly with respect to constructivism, critical social science, and positivism.

There are several approaches to classifying research paradigms in education (Merriam and Simpson 1989; Guba 1990; Collins 1992; Lather 1992; Robertson 1994). Table 3.1 synthesizes the approaches of Guba (1990) and Robertson (1994), and the classifications

reflected therein are largely consistent with basic research paradigms in human geography (Johnston 1986; Norton 1989).

Table 3.1: Paradigms in Education Research (Guba 1990; Robertson 1994)

DIMENSIONS OF THE PARADIGMS	BEHAVIOURISM (POSITIVISM)	CONSTRUCTIVISM	CRITICAL SOCIAL SCIENCE
Ontological: What is the nature of reality?	Realist: reality exists "out there" and is driven by immutable natural laws and mechanisms	Relativist: realities exist in the form of multiple mental constructions dependent for their form and content on the persons who hold them	Critical realist: reality exists but can never be fully apprehended. It is driven by natural laws that can only be incompletely understood
Epistemological: What is the nature of the relationship between the knower and the known?	Dualist / objectivist: it is possible and essential for the researcher to adopt a noninteractive posture in relation to reality	Subjectivist: findings are the creations of the process of interaction between the knower and the known	Subjectivist: values mediate inquiry
Methodological: How should the researcher go about finding out knowledge?	Experimental: questions and or hypotheses are proposed and subjected to empirical tests under controlled conditions	Hermeneutical and dialectical (i.e., interpretive and dialogical): individual constructions are elicited and compared with the aim of generating one or a few on which there is consensus	Dialogic and transformative: eliminate hegemony, or exploitation, and energize and facilitate social transformation

The basic methodological approach of behaviourism is experimental: questions and or hypotheses are proposed and subjected to empirical tests under controlled conditions (Guba 1990). Behaviourist research, reflecting a positivist epistemology, concentrates on manifest, observable behaviours that are quantifiable and allow for statistical analysis and generalizable conclusions. A consequence of this approach is that researchers tend to ignore the learner's cognitive activity, focussing on inputs (education) and outputs (behaviour) (Robertson 1994).

Lather (1986) and Guba (1990) offered comprehensive critiques of the behaviourist orientation. They argued that behaviourism treats humans as objects and ignores the importance of subjective reality (thoughts, feelings, ideas) in motivating human behaviour. In addition, Mitchell (1989, 19), in reference to positivist research in resource management,

argued that the complexity of both natural and social systems means that researchers "are often unable to isolate and measure each of the factors that might affect a particular relationship". Further, there are ethical barriers or dilemmas relating to the creation of treatment and control groups, which is necessary in experimental research.

Criticisms of behaviourism led to a variety of constructivist approaches, which attempt to interpret and analyze the "mental climate" that directs and stimulates the acts of human beings. The basic methodological approach of constructivism is hermeneutical and dialectical (i.e., interpretive and dialogical): individual knowledge constructions are elicited and compared, with the aim of generating one or a few for which there is consensus (Guba 1990). Although behaviourists accept the constructivist approach as useful in exploratory research, few consider it to be scientific (Neuman 1997). They argue that constructivists obscure the distinction between what people believe to be reality and what is reality, whether or not we can determine the truth of reality (Phillips 1990). Critical social scientists argue that constructivism is too subjective and relativist, and ignores broad historical and structural contexts (Johnston 1986; Lather 1986; Neuman 1997).

The purpose of critical social science, which also developed as a reaction to positivism, is to critique and transform social relations (Gibson 1986; Lather 1986; Guba 1990; Lather 1992). Educational research in this tradition has examined issues such as student resistance to authority (Willis 1977, cited in Gibson 1986; Bullough and Gitlin 1985), the effects of socialization into femininity (McRobbie 1978, cited in Lather 1986), literacy among the rural poor (Freire 1970), and reasons for dropping out of school (Carr-Hill 1984, cited in Lather 1986).

A criticism of the critical approach is that it contains a logical disjunction between its ontology, which is objective (reality exists "out there") and its epistemology, which is subjective (research is intimately related to the values of the researchers) (Guba 1990). A related criticism is that critical social science is fundamentally elitist. Since an objective of the critical approach is to empower people to overcome "false consciousness", this implies

that a true consciousness exists, presumably in the mind of the researcher or "some better-informed elite" (Guba 1990, 24).

Research philosophies "differ on what phenomena should be attended to, how one is to approach phenomena, and how the phenomena are to be analyzed" (Couch 1987, 106). However, Neuman (1997) suggested that the three major approaches discussed above also share common features. They each view social research as the systematic or rigorous gathering of empirically based knowledge, informed either inductively or deductively by theoretical frameworks. In addition, each is self reflective, open ended and open to public scrutiny. In human geography, Johnston (1986) observed clear links among the three paradigms and cited numerous examples of attempts to integrate them.

3.1.1 A constructivist/critical approach

Inspired by these integrative attempts, my research took a primarily constructivist approach but included analysis grounded in a critical social science paradigm (Johnston 1986; Guba 1990). I believe that integrating aspects of the two approaches provided a good entry point for research into learning through involvement in EA. Taking a constructivist approach helped add empirical detail to the theoretical and conceptual constructs of transformative learning. At the same time, relying on aspects of the critical approach guided the overall purpose of the research and the investigations into the ideal conditions of learning. Further, the critical perspective, guided by the ethos of participatory democracy and the social objectives of sustainability, informed my consideration of the implications of the research for reconceptualization and redesign of the EA process.

3.2 Research design

3.2.1 A focus on cases

Given the constructivist/critical framework adopted, the research could have been designed in various ways. As explained later in this section, it became a phased project culminating in a primary case study with selected comparative analyses involving two secondary cases. My

reasoning regarding design was influenced by my long-standing interest in case studies, no doubt developed during my law school education, which relied heavily on the case method.

3.2.2 An interactive and adaptive approach

I used an interactive and adaptive approach, following qualitative traditions in the social sciences (Patton 1990; Creswell 1994; Maxwell 1996; Neuman 1997), including education (Maxwell 1996; Merriam 1998) and human geography (Nelson 1991). My readings in this area illuminated an issue that I had detected only vaguely while conducting my Master's research, namely, the apparent gap between the incremental, transactional, frequently "messy" realities of conducting research, and the rational, synoptic, often "sterilized" way in which research is reported. Inspired by these new insights and not wanting to recreate my Master's experience, the report of which struck me as incomplete, I tried to hold an interactive and adaptive perspective throughout my doctoral research. I was guided in this regard by Nelson's (1991) description of interactive and adaptive research in human ecology. His approach fit my circumstances because it was developed primarily for inexperienced scholars engaged in complex research involving an array of interested individuals and groups. Following his approach, I tried to continuously scan the research context, including the views of various parties with a direct interest in the research. This process helped identify challenges and opportunities that necessitated adaptation of the research design, including integration of new methods and data sources.

3.2.3 Involvement of research participants

Another important aspect of design explored in my preparatory readings was the overall level of involvement of the research participants. Participatory research, such as rapid rural appraisal and participatory local appraisal, has become increasingly important in resource and environmental management (Fals-Borda 1992; Jackson 1993; Beebe 1995; Nietschmann 1995; Rennie and Singh 1996; Ward 1996; Mitchell 1997) and adult education (Freire 1970; Lather 1986; 1992; Hall 1993; Heaney 1993; Maguire 1993; Park 1993). Further, although a participatory research design can be used within any of the major research paradigms

(Frideres 1992; Park 1993), it is often associated with critical social science, aspects of which I adopted in my research. In critical research projects, there are often high levels of participant involvement, such as, in identification of the research problem, research design, data collection and analysis, and implementation of the research recommendations (Lather 1986; Hall 1993).

Despite these imperatives, I took a conservative approach to participant involvement. I valued the warnings of Heaney (1993), Maguire (1993), and others who cautioned that high levels of participation can introduce logistical complexities and the potential for serious delays in completing research. I also respected Maguire's (1993, 175-176) counsel in her account of attempting participatory research as a doctoral student: "The dissertation should be an integral part of your life work, but don't let it expand to become a lifetime project. However, make no mistake, the entire participatory research process takes time."

3.2.4 Extensive/intensive phasing

A further design issue explored in early readings and adopted in this research was a framework described by realist, industrial geographers Sayer and Morgan (1985), who distinguished between intensive and extensive research. I found this framework to be a fresh perspective on the conventional qualitative-quantitative dichotomy presented in the literature. Intensive research is primarily concerned with how a given process works in a particular or small number of cases, e.g., one-shot case studies and comparative case studies. Extensive research is mainly concerned with common properties and general patterns in a larger population and often follows a quantitative or multiple-case study approach (Sayer and Morgan 1985).

The disadvantage of intensive research, such as one-shot case studies, is that it offers little scope for generalization. It can also be problematic in measuring change, due to the lack of baseline data (Sayer and Morgan 1985; Leedy 1989; Mitchell 1989). The problem in measuring short-term change can be overcome in pretest-posttest designs (Leedy 1989; Mitchell 1989) but measuring long-term change requires a time-series research design, which

is often not practicable. These problems in measuring change can also be found in extensive research. Other disadvantages of extensive research include lack of explanatory power and the "ecological fallacy in making inferences about individuals" (Sayer and Morgan 1985, 151).

Sayer and Morgan's (1985) framework was helpful in devising the phased design used in this research, which involved both extensive and intensive stages. My reasoning was that distinct phases using different methods could reveal diverse aspects of reality and give more insight.

3.2.5 Adaptations during the extensive phase

3.2.5.1 Purposes

The extensive phase of the research was initially conceived as a general examination of Canadian EA processes to construct a sampling frame and select three EA cases for intensive, comparative study. These purposes were fulfilled but another important objective emerged during data collection and analysis. While working as a member of a larger research project led by one of my thesis committee members, the extensive phase of my project evolved into a comprehensive assessment of EA processes in Canada. The results of this assessment are presented in Chapter 4 and, as will be revealed, supplement the results from the intensive phase of the research.

3.2.5.2 Case selection criteria

Under my original research proposal (the objectives of which are described in Appendix 1), three intensive EA case studies were to be selected based on a complex set of factors thought to be significant in causal explanations linking non-formal, adult education, learning, and public involvement. However, early in data collection and after receiving input at a dissertation committee meeting, I simplified the case selection criteria. The criteria became: (1) presence of non-formal, adult education conducted by ENGOs; (2) application of an EA process that permitted comparison with the ideal conditions of learning; (3) circumstances that approximated a disorienting dilemma; (4) favourable practical factors; and, (5) recency

of the case. Details regarding application of the case selection criteria are provided in Appendix 4, page 175.

3.2.5.3 Choosing the cases

Selecting the cases was originally to follow a purposeful, mixed design that would combine extreme, representative, and theory-based sampling (Patton 1990; McMillan and Schumacher 1993). I thought that studying extreme manifestations of the concepts and theories of interest in the dissertation could permit elaboration and examination of those constructs and provide insight into their application in typical cases. Studying a representative case could provide further insight into the concepts and theories used in the study and further illuminate the circumstances of typical cases. Further, I felt that using a mixed approach to sampling design provided increased flexibility, triangulation, and ability to meet multiple research needs (Patton 1990). In my original proposal, I proposed that one of the cases would reflect many of the selection criteria, another would contain few, and the third would be representative of the settings, individuals and activities examined.

However, shortly after modifying the case selection criteria and after preparing only a tentative sampling frame of cases,[11] a committee member drew my attention to Maple Leaf Pork's new $120 million hog processing facility and its associated $13.5 million wastewater treatment plant in Brandon, Manitoba. This was for the purposes of preparing a short news report on the project for publication in Alternatives (Diduck 1999b). At about the same time, I was also exploring a strategic environmental assessment from British Columbia, the Salmon Aquaculture Review (SAR). I was attracted initially to B.C. because of its high placement in an ordinal ranking of EA processes that I had done as part of the sampling frame.

After learning more about the Maple Leaf and Salmon Aquaculture Review cases and assessing them against the selection criteria, I adopted them as case studies. Well into the research on these cases, I was invited to present a paper on linkages between barriers to

[11] Details regarding the initial sampling frame of cases are provided in Appendix 5.

public involvement in EA and barriers to public involvement in local initiatives regarding climate change. Following the prompt of a thesis committee member, while researching the climate change paper, I investigated the Green Commuting Project, a local initiative in Winnipeg that focuses on promoting increased awareness and action to reduce greenhouse gas emissions. My investigations led me to conclude that the green commuting initiative, although not an environmental assessment, provided excellent opportunities for comparative analysis of factors evident in the Maple Leaf and SAR cases. I, therefore, chose the Green Commuting Project as another case study.

Details of data collection methods are provided later in this chapter and the reasoning behind adopting the cases is presented in Chapter 4. However, in the context of adaptations to the research design, a key point is that I gave considerably more weight to criteria based on favourable practical factors and recency than originally anticipated. Another point is that in pursuing the Maple Leaf and Green Commuting Project as case studies, I built on unexpected local opportunities that emerged during the research.

3.2.5.4 Primary and secondary cases

My original proposal anticipated the decision of whether to do three equal case studies or one in considerable depth, with the other two being used to compare key aspects that emerged out of the detailed case study. I had assumed that this decision would be made in a systematic manner based on methodological criteria. In reality, the decision was made on practical grounds shortly after I concluded my second interview in Victoria on the Salmon Aquaculture Review. This is when I realized that with my abilities, knowledge, and resources, it was virtually impossible to conduct a detailed case study in British Columbia while based in Winnipeg. Without becoming a British Columbia resident for an extended period of fieldwork, attempting a detailed case study in B.C. was daunting and appeared imprudent. I, therefore, decided to focus on the Maple Leaf case, which was close to home, while using the Salmon Aquaculture Review as a secondary case in a comparative analysis of selected key variables. Later, the green commuting initiative was adopted as a case study and treated on a par with the Salmon Aquaculture Review.

3.2.6 Sampling within the case studies

In the Maple Leaf case, the population was too large for comprehensive sampling and consisted of distinct strata of participants. Therefore, to capture the heterogeneity within the population, purposeful stratified sampling was used. The following broad strata were constructed: (1) state interests – federal, provincial, and local governments, the EA agency, other interested government departments; (2) business interests – the project proponent, other business firms with economic interests in the project, labour organizations, chambers of commerce; and, (3) civil society – ENGOs, other community-based organizations, private citizens. Further details regarding the nature of the various research participants are provided in the section on data sources. Key informants in each strata were identified through the document review. These individuals were interviewed and network sampling was then used to identify further informants. In the secondary cases, sampling was aimed at selecting key informants to examine significant factors in the conceptual and theoretical frameworks in the study.

3.3 Data collection methods

3.3.1 Qualitative interviews

Given that my research questions inquired into the perspectives (i.e., the feelings, thoughts, intentions, and past behaviours) of the research participants, my principal data collection method was qualitative interviews. This method is well suited to examining what is on "someone else's mind" (Merriam 1988, 72). As Patton (1990, 278) stated, the very purpose of interviewing is "to access the perspective of the person being interviewed". Both telephone and personal interviews were used, with the majority of these involving one research participant. On two occasions, group interviews were held with three participants. There were also five interviews involving two participants. In the extensive phase of the research, the interviews typically lasted about 90 minutes although the group interview took 2.5 hours. During the intensive phase, the interviews were shorter, lasting approximately one hour, although some were as long as 1.5 hour. Further details regarding the interview participants are presented in the section on data sources (Section 3.4.2).

3.3.1.1 Interview approach

I used the interview guide (Patton 1990; McMillan and Schumacher 1993), or semistructured (Merriam 1988), approach to interviewing. I identified a list of issues based on the research questions to guide the interviews, but the exact wording or ordering of interview questions was not determined ahead of time. A flexible approach such as this was necessary to respond to the diversity of vocabularies and perspectives encountered. This approach also allowed me to respond to emergent circumstances and ideas in each of the cases. The primary interview schedules for both phases of the research are attached as Appendices 6 and 7 (pages 187-191). As well, details regarding the interview recruitment protocol are in Appendices 8-10, and particulars of data recording and management can be found in Appendices 12 and 13.

3.3.1.2 Question design

With respect to questioning, I was guided by Foddy's (1993) symbolic interactionist model, the approach I used in my Master's research. This model addresses major criticisms of qualitative interview methods by rejecting the stimulus-response model of question-answer behaviour. The key assumption in the symbolic interactionist approach is that successful communication cannot occur unless a question is understood by the respondent in the way the researcher intended, and the answer is understood by the researcher in the way the respondent intended. Respondents are not viewed as passive agents but are seen as actively negotiating a shared definition of the situation with the researcher; the two parties exhibit a "reflexive intelligence" as they negotiate the meaning of both questions and answers.

Patton (1990) identified six types of questions, the first four of which I used: (1) experience/behaviour questions – which evoke descriptions of experiences, behaviours, actions, and activities that would have been observable had the observer been present; (2) opinion/value questions – which try to discover the research participants' thoughts including goals, intentions, desires, and values; (3) knowledge questions – which attempt to discover what the participants consider to be factual information regarding the research topic; (4) background/demographic questions – which elicit basic demographic information and help

locate the participants in relation to other people; (5) feeling questions – aimed at understanding the emotional response of the participants to their experiences and thoughts; and, (6) sensory questions – which attempt to discover the sensory stimuli to which participants are sensitive.

3.3.2 Document review

Documents are "tangible manifestations" of beliefs and behaviours and "describe peoples' experience, knowledge, actions and values" (McMillan and Schumacher 1993: 433). Document review is an unobtrusive method that provides access to sources of data not subject to reactivity bias (McMillan and Schumacher 1993). It also helps ground the study in the context of the problem being investigated (Merriam 1988). A review of documents was, therefore, used to supplement the data obtained through the qualitative interviews. In nearly all cases, documents were copied to ensure preservation for analysis. In some instances, rather than photocopying, I made detailed notes or exact quotations of important passages. The copies and notes were then classified and coded to facilitate data analysis. Details regarding the types of documents reviewed are presented in the section on data sources (Section 3.4.1).

3.3.3 Participant observation

Participant observation was used to supplement the data collected through the document reviews and interviews. I took a passive or detached approach to observation (Merriam 1998). Prior to observing, I prepared a detailed observation checklist to help guide data collection (Appendix 14). While observing, I took detailed field notes, including observer comments, descriptive maps, photographs, a field log, and informal dialogues with other participants, following Bernard (1988) and Merriam (1998). Within a week of collecting the data, the observation notes were transcribed and entered into a data management system.

3.4 Data sources

3.4.1 For the document review

Documents were collected from diverse sources: federal, provincial and municipal government offices; EA registries; government and ENGO Internet sites; EA reports from actual cases; ENGO records and files; media accounts; research reports; private sector organizations; and, private citizens. In total, more than 700 documents were collected, catalogued, and reviewed.

During the extensive phase of the research, documents were reviewed from each province in Canada and the federal government. The majority of these were public records and for each jurisdiction examined, the policy instruments (i.e., statutes, regulations and policy guidelines) that govern the EA processes were gathered, as were the "guidance documents" (i.e., education and information materials such as booklets, handbooks, brochures, fact sheets, and workshop overheads) relating to EA.

During the intensive phase of the research, the majority of the documents reviewed were public records, although more than 100 letters written by private citizens to government EA agencies were also examined. The intensive (or case study) documents also included over 100 media reports, including transcripts of radio and television interviews. They further included over 30 hours of video tape of public meetings organized by the proponents in the Maple Leaf case, and transcripts of a hearing organized by an ENGO that was active in the case.

3.4.2 For the interviews

3.4.2.1 In the extensive phase

Data sources for the interviews during the extensive phase focused on officials from EA agencies. The majority of the interviews were conducted by telephone but personal interviews were held in Winnipeg, Ottawa, and Edmonton. In total, 15 interviews (with 20

participants) were held, all of which were with high ranking EA officials. Each senior level of government in Canada (excluding the territories) was interviewed.

Interview sources in the extensive phase also included representatives of ENGOs. Personal interviews (four in total) were held with members of Manitoba Eco-Network, Resource Conservation Manitoba, Westman Community Action Coalition, and Friends of the Assiniboine River Basin. The interviews occurred in Winnipeg, Pine Falls, Brandon, and Portage la Prairie, respectively. The latter two organizations were very active in the Maple Leaf Pork case study. In addition, a telephone interview was conducted with an official of the Georgia Strait Alliance, a Nanaimo-based ENGO that was active in the Salmon Aquaculture Review.

3.4.2.2 In the intensive phase

During the intensive phase of the research, interview data were obtained from a variety of sources. In the Maple Leaf case study, 27 people were interviewed from key publics, including proponents, federal and provincial regulators, non-governmental organizations that were critical of the project, non-governmental organizations that were supportive of the project, the business sector, the news media, academia, and private citizens. Interviews were also held with Brandon residents who did not participate actively in the case. All of the Maple Leaf interviews were conducted in person and occurred in Brandon, Winnipeg, Portage la Prairie, and Kemnay.

In the Salmon Aquaculture Review case, four interviews were conducted. One was on the telephone and three were in person, in Victoria, Vancouver, and Nanaimo. Two interviews were with ENGOs, namely, the Georgia Strait Alliance and the T. Buck Suzuki Environmental Foundation. One was with a lawyer and consultant who worked for the B.C. Environmental Assessment Office, and the last was with a representative of the B.C. Salmon Farmers Association. Finally, in the Green Commuting Project case study, three interviews were conducted with one staff member of Resource Conservation Manitoba. Two interviews were done in person in Winnipeg and one by telephone.

3.4.3 For the observations

There were five primary sources for the participant observation data. The first event, which occurred on June 17, 1999 at Lansdowne Park in Ottawa, was an outreach activity of the Canadian Environmental Assessment Agency. Part of a larger fair promoting the federal public service, the activity was aimed at private citizens, students, and public servants. The second source of observation data was an event sponsored by the Westman Community Action Coalition from October 29 to 31, 1999 in Brandon. This was billed as a "citizens' hearing" and was organized by the coalition to discuss the social, economic and environmental impacts of the hog industry on Western Manitoba. The third source was a meeting sponsored by Maple Leaf Pork on November 23, 1999. This was billed as an "information meeting" and was organized by the company to report on the first two months of operations at the processing plant. It was held in the evening (from 7:00 to 8:30) in a meeting room at a Brandon hotel. The fourth event was a two-day training course on cumulative effects assessment sponsored by the Canadian Environmental Assessment Agency. It occurred in Winnipeg on February 7 and 8, 2000 and was designed for EA practitioners and public servants. The final source was a news conference organized by the Westman Community Action Coalition and the Canadian Center for Policy Alternatives on May 25, 2000 to announce the release of report of the Citizens' Hearings.

3.5 Data analysis

Following a number of authorities in qualitative research (Merriam 1988; Patton 1990; McMillan and Schumacher 1993; Maxwell 1996), I began analysis early in the data collection process rather than waiting until collection was complete. This approach helped to focus subsequent data collection and to identify emerging topics and recurring patterns. I used each of the three main forms of qualitative analysis identified by Maxwell (1996): categorizing methods, contextualizing methods, and analytic notes and memos.

3.5.1 Categorizing methods

The categorizing methods involved coding and thematic sorting, which were used to provide insights into similarities and differences across settings and individuals. Initial coding was based on situational factors, and sorted the data based on jurisdiction and case. Rough, etic categories were then derived from the research questions and the conceptual and theoretical frameworks of the study. Following (Pike 1954), the etic approach was concerned primarily with generalized statements about the data in reference to a classification system derived in advance of the fieldwork. Further rounds of coding used inductive and emic categories in an attempt to ground categories in the particular language and culture of the interview participants. A form of the constant comparative method described by Glaser and Strauss (1967) was used to compare incidents, or units of data, from interviews and field notes with other incidents in the same data set. These comparisons led to tentative categories that were then compared to each other and to other incidents. Overall, data analysis was iterative and sought abstractions, such as patterns and themes, that cut across the preponderance of the data. In developing both the etic and emic categories, I followed Merriam's (1998) guidelines for category development. In this approach, categories should reflect the purpose of the research; in effect, they should answer the research questions. Categories should be exhaustive and mutually exclusive, and should be sensitizing, i.e., the naming of the category should be as sensitive as possible to what is in the data. Finally, categories should be conceptually congruent, that is, the same level of abstraction should characterize all categories at the same level.

3.5.2 Contextualizing methods

Qualitative contextualizing methods, in particular matrices, were used to obtain insight into how key variables were connected and to help answer process-related questions. In addition, a quantitative approach was used to look at associations among potential key variables. Contingency coefficients, a form of nonparametric statistical analysis, were used to examine potential explanatory relationships in the dynamics of learning through involvement.

3.5.3 Analytic notes and memos

Analytic notes and memos, the basic tools of qualitative data analysis (Maxwell 1996), were used to capture analytic thinking, stimulate insights, and generally inform categorization and contextualization. They were also used to document the reasoning for adaptations during the course of the research. In effect, the memos served the functions of diaries and field notes, used by cultural anthropologists (Bernard 1988). An example of a set of analytic notes is furnished as Appendix 15. In this particular case, the notes were prepared with the QSR N4 (QSR 1998) program during the analysis of several transcripts in the Maple Leaf case.

3.6 Validity and reliability

3.6.1 A qualitative orientation

I took a qualitative approach to validity and reliability (Lincoln and Guba 1985; Lather 1986; Merriam 1988; Eisenhart and Howe 1992; Maxwell 1996). Rather than focusing on internal validity, external validity, and reliability, which are suitable for positivist, experimental research, I examined issues of trustworthiness (credibility and dependability) and generalizability. Credibility focuses on how credible or recognizable the findings are to the people whose realities were studied or portrayed. It also concerns how understandable the findings are to those outside the direct experiences of the research participants. Dependability centers on whether data-to-concept links are consistent and dependable or whether the results make sense given the data collected. Generalizability in intensive research, such as qualitative case studies, is an enduring problem, and an evolving concept. I emphasized two conceptualizations of generalizability: case-to-case transfer and concrete universals. The former emphasizes leaving the extent to which the findings apply to other situations up to the people in those situations. This is common practice in law and medicine, where case reports are provided in detail but researchers frequently do not make generalizations or make working hypotheses. The latter accepts that general lessons can lie in the particular. That is, full and thorough knowledge of the particular allows one to see similarities in new and foreign contexts.

Following Merriam (1988) and others, I used a variety of methods in response to threats to trustworthiness and generalizability. These included (1) triangulation – using multiple sources of data and multiple methods of data collection and analysis to verify emerging findings; (2) participant checks and reinterviews – taking descriptions and interpretations back to research participants to check if the results are plausible; (3) explaining one's position when writing the research report – clarifying assumptions and theoretical orientations of the research, the basis for selecting cases and participants, and the social context from which data were collected; (4) peer review – asking colleagues to comment on findings as they emerge; (5) audit trail – providing detailed descriptions of how data were collected, categories were derived, and decisions were made throughout the investigation; (6) rich description – providing a detailed description of phenomena studied so that anyone interested in generalization has a base of information from which to work; and, (7) cross-site analysis – building abstractions or general explanations that fit each of the individual cases, although the cases vary in their details. The ensuing discussion reviews how some of these methods were used to counter specific threats to trustworthiness and generalizability met in the research.

3.6.2 Emphasis on causal explanations linking education and learning experiences

Although all research is guided by the investigator's personal frames of reference, trustworthiness is threatened when personal frames prevent the researcher from gaining insights into relevant phenomena. In my research, a threat to trustworthiness was personal bias stemming from my professional experience working for a non-governmental organization that conducted non-formal, adult education. A threat existed in placing too much emphasis on causal explanations linking non-formal, adult education regarding EA and the learning experiences of EA participants. That is, the most important learning experiences could have been partially related to education, but more directly connected to other factors such as level of involvement in the EA case or political controversy surrounding the case. An important method used to counter this threat was using multiple sources of data and multiple methods of data collection. For example, data collection in the Maple Leaf case study was extended beyond individuals and organizations conducting education, such as the

City of Brandon, Maple Leaf Pork, and Westman Community Action Coalition. I also gathered evidence directly from learners who were not affiliated with the educators, asking questions related to what they learned, how they learned it, and what their motivations were.

3.6.3 Political motivations for becoming involved

Just as research is guided by personal frames of reference, conceptual and theoretical frameworks adopted by the researcher also affect it. Trustworthiness is threatened when concepts and theory filter relevant phenomena and the research becomes a process to confirm preconceived notions or ideals. Given the critical and transformative orientation of this research, a threat existed in focusing overly on the political dimensions of the phenomena examined. For example, a line of inquiry pursued during the intensive phase of the research was personal motivations for becoming involved in EA. An important theme that emerged in response to this inquiry in the Maple Leaf case was a concern over lack of public involvement in the decision to situate the processing plant in Brandon. To counter the threat that this theme was given prominence because of excessive adherence to conceptual and theoretical frameworks, interview data were compared with historical documents and multiple sources were used to investigate the issue. Participant checks were also done with three research participants and, although the participants did not confirm their earlier statements regarding motivations, neither did they deny them.[12] A reinterview was also done with the participant who first raised lack of public involvement as motivation for participating in the process. Finally, throughout the research, I tried to explain my positions and by doing so illuminate implicit assumptions and counter threats from imposition of conceptual and theoretical frameworks.

3.6.4 Diverse public involvement and EA vocabularies

Along with personal perspectives, theory, and concepts, methodology and technique also affect trustworthiness (or validity). As noted, this research relied heavily on qualitative,

[12] The participant checks were done by mailing interview transcripts to the research participants along with a letter inviting them to provide supplementary information in response to the interview questions.

semistructured interviews, and given the subject of the research and the theory adopted, such an approach was fitting. It provided access to the subjective dimensions of education and learning. It also permitted flexibility to respond to the diversity of vocabularies and perspectives encountered. This was particularly important in the extensive phase of the research in which the EA processes of 11 jurisdictions were examined. Diverse terms were often used to describe similar but not necessarily identical concepts. For example, in discussions of public involvement issues, terms such as consultation, outreach, citizen engagement, and public participation were frequently used, sometimes interchangeably. A similar diversity of terms was found in discussions of learning-related elements of public involvement (e.g., education, information, outreach, and communication). Given these diverse vocabularies, the trustworthiness of the data was threatened by misinterpretation during the interviews. In response to this threat, relevant documents were reviewed shortly before each of the interviews, and interview schedules were modified to account for differences in terminology. In addition, a scoping or pilot interview was conducted with a senior EA official in Manitoba's environment ministry in which the basic framework of the interview schedule was reviewed and the vocabularies of Canadian EA officials discussed. Finally, a group member check was done in which initial results from the extensive phase of the research were presented to the research participants at their 1999 annual meeting, held in Victoria. The member check did not reveal serious misinterpretations of the data, although there was some disagreement with the preliminary conclusions.

3.6.5 The nature of the education attempted

Another aspect of methodology and technique linked to trustworthiness was reliance on self-reporting, an inherent feature of the interview method. Data obtained through self-reporting can be affected by poor recollection, cognitive dissonance, personal biases, and other factors, and thereby impinge trustworthiness. For example, in the Maple Leaf case study, the project proponents organized a series of "public information sessions" in Brandon and surrounding communities. Interviews revealed that these events were controversial and perceived in diverse and conflicting ways by the publics involved. Given the conflicting views and that some of the events occurred up to two years prior to the interviews, I sought to increase

trustworthiness by relying on multiple interview sources and numerous techniques. I spoke with proponents, opponents, government officials, the business sector, and private citizens. I also reviewed minutes and newspaper reports prepared shortly after the sessions occurred. Finally, I reviewed unedited tape recordings and through these various sources and techniques I gained increased trust in my understanding of the public information sessions.

3.6.6 Starting analysis during data collection

Yet another aspect of methodology and technique that threatened trustworthiness was the decision to begin analysis during data collection. This approach helped focus subsequent interviews by identifying emerging topics and recurring patterns. It also helped prevent the imposition of external meanings and definitions on the ideas expressed by the participants. However, it also created a threat from data distortions caused by changes in interview strategies, techniques, and questions. The triangulation and member checks referred to in preceding sections helped counter this threat, as did maintaining a detailed audit trail regarding how data were collected and categories were derived. In addition, as mentioned earlier, the extensive phase of the research dovetailed with a larger research project supervised by a member of my thesis committee. As a result, 15 of the interviews conducted during this phase were done with two researchers present. Because of the team setting, peer review was frequently used and became an important tool in debating and clarifying non-standardized and potentially biased responses.

3.6.7 Language barriers

Another benefit of the team setting of the extensive phase of my research manifested itself in response to a threat from miscommunication due to language barriers. One of the research participants during this phase was a representative of the Québec environment department who was not fluent in English. Since we were not fluent in French, we retained an interpreter who facilitated communication during the interview. Although relying on interpretation introduces further validity threats from miscommunication, in this instance such threats were less serious than those we would have faced if we had not used an interpreter.

3.6.8 Structural and institutional factors

As discussed earlier, case study designs pose unique threats to generalizability of research findings. My central research questions related to causal explanations between learning and public involvement in the EA process. In investigating these explanations, I examined numerous variables, including the nature of non-formal, adult education conducted, types of involvement, and what was learned through involvement. A major threat to generalizability arose, therefore, from structural and institutional factors that could also have affected the variables examined. In the Maple Leaf case study, these factors included political will in favour of the development, Brandon's generally conservative social climate, and Manitoba's pro-development economic policies. To help respond to this threat, I tried to provide a detailed or rich description of the variables studied, including numerous quotations from research participants and relevant documents. Generalizability was also supported through cross-case analysis, which included a case (the Salmon Aquaculture Review) located in a different social, economic, and political setting and another (the Green Commuting Project) situated in a different environmental planning and decision-making context.

3.6.9 Adequacy of sampling procedures

Another threat to the credibility of the research related to the adequacy of the sampling procedures. This was more of a concern in the case studies, since the extensive phase included interviews with representatives from each of the jurisdictions examined. As well, in the case study phase, adequacy of sampling was more of an issue regarding the secondary cases than the Maple Leaf case. In the latter, numerous, diverse and often conflicting perspectives were sought during sampling.

Over both phases of the research, 53 interviews were conducted, involving 55 people.[13] 20 of the interviews were in the extensive phase,[14] while 33 were in the case studies. Of these, 26

[13] 45 interviews were with one participant, six were with two participants, and two were with three participants. These numbers do not total 55 participants because some people were interviewed more than once.

were in the Maple Leaf case, involving 27 people. In contrast, only four interviews were held in SAR (with four individuals), and three were done in the Green Commuting Project (all with the same person). Obviously, such small samples threatened the credibility of my findings. To address this concern in the SAR case, I triangulated data sources by canvassing divergent perspectives, namely, industry, government, and ENGOs. In addition, with respect to both SAR and the commuting initiative, I took a cautious approach to how the data were used. I limited my use of the commuting case to investigate only one aspect of the research problem, namely, barriers to public involvement. And, this was done only after an initial framework of barriers was identified in the Maple Leaf case. Similarly, the use of SAR was restricted to deepening the analysis of forms of learning, and again this was done only after the analytic constructs were developed from the Maple Leaf data.

Finally, in qualitative research, an issue related to sampling is the representativeness of the data quotations captioned in the research report. In my dissertation, this concern applied not only to the secondary case studies but also to the Maple Leaf case and to the extensive phase. I addressed this issue, not by presenting frequency tables pertaining to how often discrete textual units were mentioned by interview participants,[15] but by consciously avoiding "cherry picking" unrepresentative quotations. At the same time, I did not shy away from highlighting unorthodox or unique perspectives, particularly if they deepened analytic constructs based on more representative viewpoints. However, whenever unrepresentative quotations were used, I made note of this and indicated in a general way whose viewpoint was being depicted. As well, when there were divergent perspectives or explicit disagreements, I noted this and presenting contrasting quotations.

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[14] As noted elsewhere, the extensive phase intersected with a larger project involving three other researchers. Of the 20 interviews in the extensive phase, I conducted three, Dr. John Sinclair (the Principal Investigator of the larger project) conducted two, and we jointly conducted 15.

[15] For a good example of this approach in the resource and environmental management literature, see Baxter and Eyles (1999).

3.7 Ethics considerations

Two applications for ethics approvals were submitted to the Office of Research Ethics, one for the extensive phase and the other for the case study or intensive phase of the research. Both approvals were granted, the first on July 7, 1999 and the second on January 27, 2000. The applications were comprehensive and dealt with compensation, potential benefits, potential risks, and the use of deception. They also covered feedback and confidentiality, discussed briefly below.

A database was maintained to facilitate communication with participants during and after the interview. Upon completion of each interview, participants were sent a letter of appreciation for their involvement in the interviews and were offered an executive summary of the research upon project completion. The letter of appreciation for the intensive phase is attached as Appendix 16 (page 196).

Data collected and identities of interview participants were treated as confidential. Interview tapes and notes were transcribed and entered onto my computer hard disk. Backup copies of the data were stored on removable media devices such as floppy and zip disks. The original notes, computer hard disk, and backup disks were stored in my home office and were inaccessible to anyone other than members of my thesis committee and myself. Identities of the interview participants were protected through the use of a coding system and all publications derived from the research will refer only to aggregated data or rely on the coding system for reference. My approach to confidentiality of the observation data was similar to my approach to the interview data. However, when reporting comments of public speakers (panelists, conference presenters, etc.) identities were not concealed since their comments were issued as public statements.

3.8 Summary

This chapter has presented the dissertation methodology. The first section reviewed briefly my reading in research philosophy, and explained how the dissertation was primarily constructivist but included analysis grounded in critical social science. Taking such an

approach was appropriate given the focus of the research and its emphasis on linkages between public involvement and learning.

The next section canvassed the research design and reported that although I took an interactive and adaptive approach, I was fairly conservative with respect to participant involvement. Increasing the level of participant involvement could have increased the critical import of the research but would have likely introduced complexities and delays. This section also reported that the dissertation was a phased project with an initial extensive stage followed by an intensive, comparative case study stage. Phasing the project was a strength of the research design and furnished insight into diverse aspects of EA process in Canada. Section 3.2 also reviewed adaptations in the research, including how the creation of a sampling frame evolved into an assessment of Canadian EA processes and how the case studies were selected based largely on logistics and timing. This latter point is an aspect of the design that could have been strengthened. Taking a more systematic approach to case selection could have provided greater insight into the concepts and theories adopted in the study. Another aspect of design that could have been strengthened was the level of detail in which the secondary case studies were examined. Deepening the examination of the secondary case studies could have had positive implications for the trustworthiness of the intensive phase of the research.

Section 3.3 reported on data collection and indicated that qualitative, semistructured interviews were the principal method employed. Four types of interview questions were used (experience, opinion, knowledge, and background) and a symbolic interactionist model of question design was adopted. In the extensive phase, interview data were recorded with contemporaneous handwritten notes, while in the intensive phase, interviews were tape-recorded. The richness of the interview data from the extensive phase could have been improved if the interviews had been tape-recorded but I was concerned that tape-recording would have resulted in a loss of candor.

Section 3.4 summarized sources of data and reported that documents were collected from federal, provincial and municipal governments, ENGOs, news media, research reports,

private sector organizations, and private citizens. In total, more than 700 documents were collected, catalogued, and reviewed. The majority of these were public records, including policy instruments, guidance documents, and case-specific EA documents. This section also indicated that in the extensive phase, 25 participants were interviewed, most of whom were senior officials with EA agencies across Canada. During the intensive phase, 27 interviews were held with key publics in the Maple Leaf case, four were held in the Salmon Aquaculture Review, and three in the Green Commuting Project case study. Finally, Section 3.4 reported that there were five primary sources for the participant observation data, one of which pertained to the extensive phase, with the other three relating to the Maple Leaf case study. Generally, the diversity and richness of the data are strengths of the methodology.

Section 3.5 reported that I began analysis during data collection rather than waiting until collection was complete. Analysis comprised categorizing methods (using both etic and emic classes), contextualizing methods (such as matrices and contingency coefficients), and analytic memos (to capture reasoning for adaptations and stimulate insights). Section 3.6 looked at methods to counter threats to trustworthiness and generalizability, including triangulation, member checks, peer review, audit trail, and cross-case analysis. Specific threats encountered in the research included placing too much emphasis on causal links between non-formal, adult education and the learning experiences of EA participants, focusing overly on political motivations for becoming involved in EA, and confusion caused by diverse public involvement and EA vocabularies across Canada. Finally, Section 3.7 examined briefly selected ethics issues such as interview recruitment protocol, feedback to participants and confidentiality.

Chapter 4 : Cross Canada check-up

> While instrumental action corresponds to the constraint of external nature and the level of the forces of production determines the extent of technical control over natural forces, communicative action stands in correspondence to the suppression of man's own nature. The institutional framework determines the extent of repression by the unreflected, "natural" force of social dependence and political power, which is rooted in prior history and tradition. A society owes emancipation from the external forces of nature to labor processes, that is to the production of technically exploitable knowledge (including the "transformation of the natural sciences into machinery"). Emancipation from the compulsion of internal nature succeeds to the degree that institutions based on force are replaced by an organization of social relations that is bound only to communication free from domination.
>
> – Jürgen Habermas, Knowledge and Human Interests, 1968

The dissertation followed a phased design in which an extensive review of Canadian EA processes preceded an intensive, comparative case study. This chapter presents the results of the extensive phase of the research. Section 4.1 focuses on learning and public involvement and answers the first research question by providing an assessment of the extent to which EA processes in Canada facilitate mutual learning by participants. Section 4.2 summarizes the extensive analysis and results bearing upon the case selection process.

4.1 A transformative learning assessment

The framework for the assessment presented in this section was based on the ideal conditions of learning, transformative constructs described on page 12. Evaluative research using these variables provides insight into potential EA reform. In the ensuing discussion, the ideal conditions were, in some cases, adapted to derive criteria suitable to the process-level of analysis used in the assessment. Operational definitions for the criteria were developed through considering the applicability of the criteria to the literature detailing EA public involvement processes. The assessment criteria and related operational definitions (or indicators) are presented in Table 4.1.

Table 4.1: Assessment Criteria and Related Operational Definitions Derived from the Ideal Conditions of Learning

ASSESSMENT CRITERIA	OPERATIONAL DEFINITIONS
Accessible and complete information	Is the public registry accessible? Is the web site accessible and informative? Is public notice adequate? Are project documents required to be user-friendly and in summary form? Is the primary legislation readily available?
Freedom from manipulation or control	Is responsibility for public involvement delegated to the proponent?
Openness to diverse perspectives	Does the process address need, purposes, and alternatives? Does public involvement occur at normative & strategic levels of planning? Is the process subjected to continuous improvement?
Opportunity to reflect critically upon presuppositions	Is the public shown how its input is used in decision making? Do opportunities exist for interactive education not linked to specific cases?
Equitable opportunity to participate	Do opportunities exist for public involvement throughout the process? Is there a participant funding program? Is there a "directly affected public" bias? Do opportunities exist for active rather than just passive participation? Is there more government support for the proponent than for intervenors?
Opportunity to have arguments evaluated in a systematic fashion	Is there an impartial decision maker? Does transparency exist in decision-making processes? Do systems exist for the integration of public submissions?

4.1.1 Accessible and complete information

The first of the ideal conditions of learning is accurate and complete information. This variable was modified slightly to focus on the provision of accessible and complete information. In EA, problems associated with information provision are manifest in incomprehensible environmental impact studies (Shrybman 1983; Gallagher and Jacobson 1993; Sullivan et al. 1996) and incomplete disclosure of relevant information (King and Nelson 1983; Tableman 1990; Diduck and Sinclair 1997b). To account for these problems, the criterion was operationalized using five indicators: Is the public registry accessible? Is the web site accessible and informative? Is public notice adequate? Are project documents required to be user-friendly and in summary form? Is the primary legislation readily available?

4.1.1.1 Is the public registry accessible?

A registry or repository system provides a basic means of public access to information concerning proposed projects being assessed. The data indicated that there is room for improvement in the public registry systems of some jurisdictions. Nine of the 11 jurisdictions (all but Prince Edward Island and Newfoundland) maintained some form of publicly available registry. Of the nine, only six (all but Alberta, New Brunswick, and Nova Scotia) provided access to the registry or some part thereof through the Internet. Further, only four of the jurisdictions (British Columbia, Québec, Canada, and Manitoba) provided access to the registry in regional offices or through regional partners, such as local libraries or ENGOs. In addition, in some jurisdictions EA officials were concerned about an excess of registry information available through the Internet. A British Columbia official commented that:

> We heard criticism that there is too much information on the web site and registry. So, we are looking at preparing listings and summaries, which will simplify access to electronic information (Pat, June 30, 1999).

4.1.1.2 Is the web site accessible and informative?

With the advent of the World Wide Web, the Internet has become, for many members of the public, an easy and inexpensive way of accessing government files. Access through the Internet not only reduces the time and expense of travelling to government offices, it can reduce the costs of document reproduction, although it raises other questions of equity not explored in this research. The interviews with government officials revealed an awareness of the Internet as an important means of public access to government documents. One federal official commented that, "The web site is viewed as an increasingly important tool for the provision of information about what we do and what EA is" (Ira, June 17, 1999). A provincial official said:

> We are moving more and more to electronic registration of projects and provision of information through the electronic registry. As the technology evolves, we are getting more information and public comments in electronic form (Pat, June 30, 1999).

Seven of the 11 jurisdictions had Internet sites devoted solely to EA. The remaining jurisdictions had sites devoted to resource and environmental management or environmental protection that contained some information on EA but did not have dedicated EA sites. The document review further revealed that five of the sites provided access to detailed guide books regarding the EA process, while the other sites provided basic information through such vehicles as frequently asked questions and fact sheets. All of these sites referred to public involvement as part of the EA process, but only four offered detailed information on how members of the public can become involved in the process. Further, although seven of the sites offered access to project documents placed on the public registry, only three gave access to public comments that had been filed.

Although all of the sites had search capabilities, only two had search engines specific to the department responsible for EA. The others had search engines that were more general in that they searched all government departments. In addition, while most sites provided a page or two on libraries, links for searching the departmental libraries were only provided in two cases. Finally, all of the sites listed selected contact links for more information on EA but only six provided direct e-mail links to departmental officials responsible for EA.

4.1.1.3 Is public notice adequate?

Once a development proposal is submitted to government authorities and the EA process is triggered, adequate public notice is fundamental for fair and effective public involvement. Notice normally involves some form of advertisement through local print and, in some cases, broadcast media. It provides the public with notification of the application for environmental approval by a proponent, where the public can access further information about the case, and to whom they can provide their comments.

All of the jurisdictions had notice provisions in either their EA statutes, supporting regulations or policies. These provisions included specific notice (ranging from 30 to 45 days) if public hearings are to be held. There was less consistency, however, in how notice was provided, and by whom, for other milestones in the EA process, such as filing of the

proposal and completion of the environmental impact statement. In Alberta, the proponent was required to publish notice of an application in at least one paper with daily or weekly circulation in the locality of the undertaking and to announce that directly affected people can submit concerns (Alberta Environmental Protection 1996). The provincial EA director could waive this requirement in an emergency, when the activity proposed is routine, and when notice has already been given. In British Columbia, the provincial director and the proponent were required to notify the public of acceptance of an application, the preparation of terms of reference, and the preparation of draft project reports (British Columbia Environmental Assessment Office 1995a). At the federal level, public notice was discretionary in the case of screenings. When public involvement was deemed appropriate, notice was required to be published in the Canada Gazette. In the case of comprehensive studies and hearings, notice in the Gazette was mandatory. The Canadian Environmental Assessment Agency had responsibility to ensure proper notice is provided (Canadian Environmental Assessment Agency 1992). Given the lack of consistency in notice requirements, careful consideration of such provisions is necessary by publics interested in intervening.

Due to the discretion in how notice is provided, it is not unusual for such provisions to be a point of controversy. For example, what constitutes proper notice has been considered by the courts in Manitoba (Manitoba Court of Appeal 1998; Manitoba Court of Queen's Bench 1998) and other jurisdictions, which further highlights the uncertainty surrounding notice provisions.

4.1.1.4 Are the project documents required to be user-friendly and in summary form?

Information provided to the public must not only be accurate and complete, but easily understandable. This applies not only to EA policy itself, but to documents generated in case situations, such as environmental impact statements. In relation to EA policies, as indicated earlier, all jurisdictions produced guidance documents, varying from detailed guidebooks developed primarily to assist proponents with the EA applications (e.g., Canadian Environmental Assessment Agency 1994; British Columbia Environmental Assessment Office 1995a; Marbek Resource Consultants 1998) to one and two page EA bulletins

available in print and on web sites (e.g., Ontario Ministry of Environment and Energy 1997a; 1997b). However, none of the jurisdictions had plain language EA legislation, which can further assist the public in understanding the law and how it applies. Moreover, consideration of the guidance documents revealed that although they provided basic information on how the EA process works, with the exception of the federal government and British Columbia, the guides lacked detailed information for the public on ways to participate, and for proponents regarding techniques of public involvement.

In relation to documents generated in case situations, as discussed in Chapter 2, empirical evidence from the United States indicated that such documents are often difficult to read and understand (Gallagher and Jacobson 1993; Sullivan et al. 1996). In discussions with participants in the present study, there was a general recognition that EA documents were long and complex, making them onerous for all parties to understand. However, no clear solutions or common approaches to making the documents user-friendly were evident in the responses provided. Two government officials indicated that they reviewed EISs for ease of reading: "When I receive a draft report I go through it and make sure that the EIS is digestible and clear for the public" (Gil, June 28, 1999); "I think that we give a lot of editorial comments that go back to the proponent. The final version is generally more digestible" (Teo, June 24, 1999). Others recognized the problem and noted possible solutions: "We realize that it is important to ask how we can expect citizens to have the resources and capacity to digest such documents. So we are toying with requiring proponents to prepare a summary document" (Wayne, May 17, 1999).

4.1.1.5 Is the primary legislation readily available?

EA legislation and regulations should be listed, and accessible for viewing and down-loading over the Internet. However, only six jurisdictions provided access to legislation via the Internet. When asked why access was not provided, one official indicated that he was "surprised that it was not available" and that "he would check into it" (Ornette, May 4, 1999), and the Act and regulations were subsequently added to the web site. In three other jurisdictions, participants indicated that government policy required them to sell the Act to

members of the public who requested copies. In the remaining jurisdictions, no particular reasons were given for not providing access, with one respondent noting that "it should be there... this is an improvement we need to make" (Teo, June 24, 1999).

Lack of availability of the legislation and regulations means that people must go to a library that carries such materials, and in many cases this could be difficult and time consuming. If some jurisdictions provide such information, all of them could. Being able to access the law easily is particularly important for legislation that purports to value public involvement.

4.1.2 Freedom from manipulation or control

The second of the ideal conditions of learning is freedom from coercion, interpreted here to mean freedom from manipulation or control. In EA, the problem is manifest in the devolution of responsibility for public involvement from government to proponents. Given the potential for conflict between the interests of proponents and those of the broader public, greater proponent control of public involvement increases potential for greater manipulation of involvement processes (Tableman 1990; Frideres et al. 1992; Richardson et al. 1993; Webler et al. 1995; Regnier and Penna 1996). To investigate the control and manipulation issue, the criterion was operationalized by examining one indicator: whether primary responsibility for public involvement was delegated to the project proponent.

The data indicated a high degree of proponent control of public involvement programs. In all but one jurisdiction, the proponent had largely unfettered authority over how the public is consulted and how information is assessed and utilized, outside of a hearing situation. The following comments reflect the approaches adopted in most jurisdictions:

> The proponent is responsible for the public involvement program at all stages of the EA process except if there are hearings. Little, if any, guidance is offered to proponents in developing their programs of public involvement (Wayne, May 17, 1999).
>
> The proponent is responsible for consulting with the public. Proponents in the province are deemed to be responsible and competent to develop meaningful public involvement programs. We don't tell them what should be in the consultation plan. Meeting any consultation requirements at the presubmission, screening and EIS preparation stages are left to the proponent. (Bud, July 5, 1999).

> We do not participate in the development of a communication/consultation plan (Cab, June 30, 1999).

Although considerable onus was placed on proponents with respect to public involvement, they were given little guidance in conducting public involvement, and criteria or standards were not available for gauging the adequacy of their involvement programs:

> We try to separate the outcome from the process. We look for a process that adequately provides opportunities for involvement. One of the ways we can assess the process is through an informal monitoring of letters to the Minister and calls to our office. We sort of look for the bureaucratic heat around an issue. The more heat there is may indicate flaws in the process. The proponent may just say there are wing nuts out there but we say there may or may not be wing nuts, but the heat may also indicate flaws in the process (Bud, July 5, 1999).
>
> The department does not have any specific guidelines regarding public involvement. I understand the value of standards but they do not provide sufficient flexibility (Blossom, June 10, 1999).

For some EA officials, the reliance on proponents for public involvement programming was viewed as problematic. One identified the lack of guidance as an issue:

> I do not think that the proponents or public get much help with public involvement. I see this as a weakness in the EA process (Erskine, May 14, 1999).

Not unexpectedly, ENGO members also registered misgivings with proponent driven consultations. One pointed to the inherent conflict of having the project proponent control the involvement of publics who may be critical of the development: "I do not think that they [proponents] do any meaningful public involvement. Some try harder than others...but it is really just a sham to get approval" (Diana, August 18, 1999). Another raised the issue of lack of guidance:

> The problem is that there is no accountability. The province tells them that they have to do some public involvement so they just blindly get on with something. They never advertise meetings properly... (Holly, August 19, 1999).

4.1.3 Openness to diverse perspectives

The third of the ideal conditions of learning is openness to alternative perspectives. This variable was modified slightly to focus on openness to diverse perspectives. In EA, the problem is manifest in exclusive planning and decision making and lack of attention to long-term social goals (Richardson et al. 1993; Kagonge 1995; Regnier and Penna 1996; Stevenson 1996; Nikiforuk 1997). To account for these problems, the criterion was operationalized by examining three indicators: Does the process address need, purposes, and alternatives? Does public involvement occur at normative and strategic levels of planning? Is the process subjected to continuous improvement?

4.1.3.1 Does the process address need, purposes, and alternatives?

The need for a given project and its purposes lies at the heart of most development proposals. EA processes that permit consideration of these issues, and the related issue of alternatives, reflect openness to competing perspectives. However, debate continues over the extent to which EA should consider these matters. The ENGO community has long held the position that they are essential components of credible EA decision making (Canadian Environmental Network 1988). However, developers have not been as quick to embrace these concepts, and some view consideration of such factors through EA as unjustified government intervention in the economy (Government of Manitoba 1999). It is not surprising then, that the extent to which EA processes in Canada required consideration of these factors was mixed. With the exception of the federal process, there were not clear legislative requirements for consideration of need. As well, there were no universal requirements for consideration of alternatives. Ontario, British Columbia, and Quebec had the only statements in law requiring consideration of the rationale for a project and project alternatives. With the exception of Manitoba and Alberta, all of the other provinces required consideration of need and alternatives in guidance documents or EA registration forms.

4.1.3.2 Does public involvement occur at normative and strategic levels of planning?

The timing of public involvement is another indicator of how open a process is to alternative perspectives. Involvement can occur at normative levels of planning (decisions are made as to what should be done), strategic levels (decisions are made to determine what can be done), and operational levels (decisions are made to determine what will be done) (Smith 1982). The earlier involvement occurs, the more influence the public could have on fundamental issues such as need, purposes, and alternatives. Through early involvement, different alternatives can be considered, and adjustments made to a proposed undertaking prior to substantial investments of time and money.

The data indicated that public involvement was typically not required legally until operational stages of planning, while involvement at earlier junctures was left to the discretion of the proponent. The interview data also revealed that in half of the jurisdictions, government EA agencies encouraged early public involvement by the proponent but none of the agencies consulted with publics themselves. Further, although provinces such as Manitoba and Alberta encouraged proponents to consult with directly affected publics, such consultation was not a legal requirement. As a result, early involvement (i.e., at normative levels) was sporadic at best. With respect to later stages of the process, such as preparation of the EIS (which is frequently at the operational level of planning), comments provided by the EA managers revealed that none of the provinces had a legal requirement for active public involvement.

4.1.3.3 Is the process subjected to continuous improvement?

The notion of continuous improvement in management provides yet another indicator of how open a process is to alternative perspectives. The ensuing analysis examines issues relating to adaptive capacity and impacts on decision making, and evidence of continuous improvement was found in both areas.

Decision makers can signal openness to alternative perspectives by looking for new and innovative ways to improve their EA public involvement programs. Of the 11 jurisdictions

examined, nine provided evidence of continuous improvement in regard to their public involvement programs. Government officials in one jurisdiction mentioned learning or seeking assistance from professional associations, such as the International Association for Public Participation. Participants from five jurisdictions revealed evidence of learning from their government counterparts. One participant said:

> We scan a number of jurisdictions. Currently we have consultants looking at all provinces and some foreign governments to gauge their activities. One aspect of these studies is public involvement. One thing that is clear, we have to improve access to information and data... (Mel, June 17, 1999).

In addition, both decision makers and proponents can show willingness to listen and be open to alternative perspectives by incorporating input from the public into proposed project plans. Government officials noted learning from public input in two areas: changes to specific project proposals and changes to the EA process itself. In relation to process-related changes, it was noted that:

> Environmental groups do not like proponent driven consultations... We have recognized this and have established other venues and opportunities for people to express themselves. We try not to set up the last ditch blood bath meetings (Pat, June 30, 1999).
>
> We have made policy changes as a result of submissions, including the inclusion of public involvement in the development of project specific guidelines (Wayne, May 17, 1999).

In respect of project-related changes, seven of the jurisdictions believed strongly that public input had resulted in changes to project plans, e.g.:

> There are many examples in the system of how community input improved or changed a project (Cab, June 30, 1999).
>
> The department does try to learn from the input it receives. For example, there have been changes to project design based on the input the department has received (Ornette, May 4, 1999).

However, only two officials offered examples of such changes:

> An example is how specifications for lagoon liners changed based on advice. Also, the department has applied information requirements from past cases to pending submissions (Ornette, May 4, 1999).

> A recent air quality case, which involved flue gas desulfurization, is an example that shows how public input has changed a project (George, June 16, 1999.

EA managers were also asked if their departments had formally considered why people choose not to participate in EA cases. Consideration of this question could provide evidence of willingness to find ways to involve as broad a spectrum of interested publics as possible so that numerous alternative perspectives could be presented. All of the managers had opinions about why people choose not to participate, the most common being that people are too busy, but only one jurisdiction indicated that it had formally considered this issue.

4.1.4 Opportunity to reflect critically about presuppositions

The fourth of the ideal conditions of learning is ability to reflect critically about presuppositions. For application at a process-level of analysis, this variable was adapted as opportunity to reflect critically about presuppositions. Similar to openness to diverse perspectives, problems with lack of opportunity for critical reflection are associated with exclusive or closed decision-making processes (Richardson et al. 1993; Webler et al. 1995; Regnier and Penna 1996; Nikiforuk 1997). In addition, opportunities for critical reflection can be impinged by the strict time constraints often found in EA case settings. To investigate these issues, the criterion was operationalized by examining two indicators: Is the public shown how its input is used in decision making? Do opportunities exist for interactive education not linked to specific cases?

4.1.4.1 Is the public shown how its input is used in the decision-making process?

As discussed in the section on openness to alternative perspectives (Section 4.1.3), the data revealed substantial evidence of continuous improvement on the part of government EA agencies in regard to public involvement programs, specific project proposals, and changes to the EA process itself. If such evidence was made apparent during the conduct of an EA, further learning opportunities could be created for members of the public who had participated. Such information could signal to involved publics the importance of their input, how it was used, and where gaps exist that further involvement could address. Once the case

is complete and decisions are made, feedback on input could furnish concerned publics with the information necessary to participate more effectively in the future. In effect, participants would be afforded opportunities to reflect critically upon their presuppositions regarding the EA process and the specific case at hand.

According to the data, information feedback to participating publics was lacking. Some EA managers even held the view that their history of decisions taken and the lack of feedback had led some participants to question if they would participate again in the future. As one official noted, "one concern we hear is that once the public participates and provides their input it is a black box" (Ira, June 17, 1999). Another indicated that the process of information exchange was "not as transparent as it should be" (Ornette, May 4, 1999), implying that the decision-making process itself was not open to the public.

4.1.4.2 Do opportunities exist for interactive education not linked to a specific case?

Consistent with long-standing frameworks of public involvement in resource management (e.g., Grima 1985; Sinclair and Diduck 1995), I viewed education and information dissemination as important components or subsystems of public involvement. In reviewing the data, an important theme emerged relating to whether education and information dissemination were 'linked' or 'unlinked' to an actual case proceeding through an EA process. The linked-unlinked distinction is important because education and information dissemination not linked to an actual case could provide important opportunities for long-term, critical learning that challenges dominant discourses typically found in environmental assessments. Only in unlinked activities will there be the time to conduct education that promotes critical activities such as grass roots organization, political advocacy, and the development of alternative economic, ethical, and environmental discourses. In contrast, education and information dissemination of the linked variety are less likely to be critical because they occur within a typically pro-development context subject to the various time limits that apply to cases proceeding through an EA process.

Another theme that emerged from the data is the distinction between interactive education and passive information dissemination. The former, particularly if it demonstrates characteristics of critical pedagogy (see, for example, Greenall Gough and Robottom 1993; Shor 1993; Clover et al. 1998; Diduck 1999a), provides opportunities for reflection upon presuppositions and learning of the sort referred to in the foregoing paragraph.

The data suggested that each of the jurisdictions undertook some form of unlinked education and information dissemination. However, few of the jurisdictions did so in a coordinated or strategic fashion that promoted EA in a manner similar to social marketing efforts found in areas such as waste management (e.g., provincial and municipal blue box campaigns). All jurisdictions used passive information dissemination techniques, including written guidance documents published in both hard copy and electronic (i.e., Internet) formats. In addition, all jurisdictions had experience with interactive education, although for all jurisdictions but one this experience was minimal and primarily reactive. A typical comment, which reflects experiences common to all jurisdictions, was that "on request we do about six presentations a year to university classes, high schools, industry" (Gil, June 18, 1999).

The one jurisdiction with considerable experience with interactive education was the federal government, which has provided education and training on a proactive basis, targeted primarily to government officials and EA practitioners. As noted previously, one of the sources of observation data was an example of this type of training program, a two-day course on cumulative effects assessment organized by the Canadian Environmental Assessment Agency. The federal government also recently moved into the area of formal education by developing educational materials for use at the middle school level.

The data also indicated very little interactive education being carried out by government agencies in the context of a case. For example, one participant indicated that, "Once a proposal is filed, we do not usually do any education or information except in response to requests" (Ornette, May 4, 1999). The main role of the departments was information dissemination, although government agencies may become involved in interactive events sponsored by the proponent. One participant indicated that, "The department is usually

invited to attend public information meetings organized by the proponent but we do not host these sorts of meetings" (John, June 10, 1999).

4.1.5 Equitable opportunity to participate

The fifth of the ideal conditions of learning is equal opportunity to participate. This variable was modified slightly as equitable opportunity to participate to accommodate different approaches for diverse publics in order to achieve the goal of equality.[16] In EA, problems associated with opportunities to participate relate to timing and degree of involvement, lack of institutional capacity, and the breadth of the publics involved (e.g., Smith 1982; Canadian Environmental Network 1988; Gibson 1993; Richardson et al. 1993; Nikiforuk 1997; Sinclair and Diduck 2000). To account for these problems, the criterion of equitable opportunity to participate was operationalized with five indicators: Do opportunities exist for public involvement throughout the process? Is there a participant funding program? Is there a "directly affected public" bias? Do opportunities exist for active rather than just passive participation? Is there more government support for the proponent than for intervenors?

4.1.5.1 Do opportunities exist for public involvement throughout the process?

All the jurisdictions had public involvement as a central component of their EA processes. In some cases, involvement was a cornerstone of the EA legislation itself. Manitoba's Act stated that one of its purposes was to "provide for public consultation in decision making" (Manitoba Environment 1991). The federal legislation included a goal to establish that the

[16] My interpretation of equality was informed by the "substantive" approach to equality developed by the Supreme Court of Canada over the past 15 years in cases such as Law v. Canada and Eldridge v. B.C. The substantive approach goes beyond "formal" equality, which asks whether public policy treats all individuals the same. Substantive equality recognizes social context, including patterns of disadvantage in society, and requires government to take these into account in developing and implementing public policy. In other words, law, policy, and government action must promote full participation in society by everyone, regardless of personal characteristics or group membership. I adopted the substantive approach because patterns of disadvantage exist in the context of EA just as they do within society at large. In this light, EA intervenors

"Government of Canada is committed to facilitating public participation in EA..." (Canadian Environmental Assessment Agency 1992). In British Columbia, a stated purpose of the EA Act was to "provide for participation, in an assessment under the Act..." (British Columbia Environmental Assessment Office 1995b). In other jurisdictions, the importance of public involvement to EA decision making was established in guidance documents. For example, the Alberta guide stated that the Act "provides Albertans with the opportunity to understand and provide advice on decisions affecting our environment" (Alberta Environmental Protection 1993).

Given these commitments in law and policy, one would expect that opportunities for public involvement would exist throughout the EA process. However, as discussed in the section on timing of public involvement (Section 4.1.3.2), opportunities for early involvement were sporadic and opportunities for involvement in later phases (other than at public hearings) were often not enshrined in legislation. Moreover, the processes by which participation could occur were often not clearly established, particularly with respect to opportunities prior to the submission of an EIS. An exception was that all jurisdictions provided opportunities for publics to provide written comments once an EIS had been submitted. All jurisdictions were also clear on the process to be followed if public hearings were required. Some of the most detailed guidance documents dealt with public involvement in relation to EA hearing processes. The essential requirements for public notice and input for hearings were contained in the EA legislation itself, and in most jurisdictions the hearing bodies also had their own publicly available guides.

4.1.5.2 Is there a participant funding program?

Numerous authors have suggested the importance of participant funding to public involvement in EA (e.g., Gibson 1993; Wood 1995), and this view has been echoed by ENGOs. For instance, the Canadian Environmental Network (1988) commented that:

(such as First Nations and ENGOs) are in the same position as equality-seeking groups in society, such as women, persons with disabilities, and persons of colour.

> Effective participation by the public requires funding. The disproportion of resources between proponents and the public necessitates the establishment of an independent funding body to provide adequate amounts of funding to allow full and meaningful participation, at all steps, to committed members of the public.

However, the data revealed that only four of the 11 jurisdictions (British Columbia, Canada, Manitoba, and Ontario) had some form of participant funding. Further, in those four jurisdictions, the scope of the funding programs was limited. Interviews revealed that in British Columbia, "The policy for a Public Advisory Committee is that funding for out of pocket expenses is available" (Pat, June 30, 1999). Under federal jurisdiction, "There is financial assistance for panel reviews only" (Lenny, June 18, 1999). In Manitoba, the funding program has been used infrequently and the government has been "stone cold" towards making use of the program. In Ontario, funding was limited to public hearings and came in the form of an award of costs issued by the Environmental Assessment and Appeal Board. One other jurisdiction, which does not have a formal funding program, reported a case in which funding was granted to an intervenor to do a study, "but this went poorly and it is not likely it will happen again" (Lionel, May 18, 1999).

4.1.5.3 Is there a "directly affected public" bias?

This indicator addresses the issue of whether equal opportunities exist for diverse publics to become involved in the EA process. While little has been said in the literature, some ENGOs have argued that government agencies encourage proponents to focus their consultations on those people who will be most directly affected by a project. Such a bias toward "directly affected publics" could have tremendous implications for the depth and breadth of issues considered. In many instances, those who are directly affected stand to receive the greatest benefits, such as employment opportunities and lower taxes, with the costs being more broadly shared in society. In Canada, this is a common situation in resource extraction cases such as the construction and operation of pulp and paper mills. In other instances though, those who are directly affected could bear the brunt of the costs of a project, with the benefits being broadly distributed in society (e.g., siting hazardous waste landfills and hydro development). This raises distribution of power issues that demand further attention but were beyond the scope of this research.

The document review revealed little to support the contention of a directly affected bias, with the exception of the Alberta and Nova Scotia processes. Alberta's EA guide indicated that, "any person directly affected by a proposed project... may submit a statement of written concern to the Director... (Alberta Environmental Protection 1993, p. 18). EA managers representing seven jurisdictions commented on the issue, while three officials indicated a bias toward those directly affected:

> These are the people that we want to reach. We are mostly interested in what they have to say... (George, June 16, 1999).
>
> The department strongly encourages the proponent to do extensive consultations with directly affected publics (Ornette, May 4, 1999).

Others recognized the importance of including broader interests in the public involvement process:

> Greenpeace had interesting input in the magnesium case (Cab, June 30, 1999).
>
> ENGOs have done some good work. They have been helpful in achieving the paradigm shifts e.g., moving from clear cutting to silvaculture (Pat, June 30, 1999).
>
> Local people should be engaged but many issues don't have a home base and you need interest groups to speak to these issues (Bunny, June 18, 1999).

4.1.5.4 Do opportunities exist for active rather than just passive participation?

Equal opportunity to participate implies the use of involvement techniques that go beyond passive mechanisms, such as provision of notice and requests for written comments. It implies dialogue or personal interaction through the use of active techniques, such as workshops and simulation exercises. However, the data indicated that the use of active participation mechanisms was limited.

Although all jurisdictions had legislative provisions for public hearings, it was rare for projects to be submitted for hearing. In addition, although most jurisdictions relied heavily on open houses, an active consultation technique, open houses are typically under the control of the proponent and provide limited opportunities for interaction among participants. One government official stated, with respect to the use of open houses by proponents, that:

> We are fairly open to what they put forward. A lot of them avoid the big presentation because they see it as a forum for soap boxing by the opponents of the project. They tend to prefer open houses with booths and displays (Teo, June 24, 1999).

Not surprisingly, the ENGO responses indicated dissatisfaction with open houses. One respondent said, "In terms of engagement they are useless..." (Holly, August 19, 1999). Another commented that:

> People hate these dog and pony shows. People are fed up with the process of open houses. This form of engagement of the public is just not adequate. They are set up to win support for the project, not to look critically at the project from all perspectives (Diana, August 18, 1999).

Finally, the data indicated that deliberative public involvement mechanisms, such as community advisory committees, were used rarely. British Columbia's Public Advisory Committee, an example of a legislated, though discretionary, deliberative mechanism, has been used just twice. Case-specific examples were found in other jurisdictions, including Manitoba, Canada, Prince Edward Island, and New Brunswick, although these were more the exception than the rule.

4.1.5.5 Is there more government support for the proponent than for intervenors?

A major theme identified in the data was that government assistance to the proponent was disproportionate to that provided to the public. The documents indicated substantial government support for the proponent, such as technical assistance in developing a proposal and administrative assistance in shepherding the proposal through the process. In the interviews, government officials indicated that their work in early stages of the EA process was almost exclusively directed to the proponents:

> All presubmission activities are linked to the client. There is very little geared to the public. The objective is to ensure a timely and effective process (Ornette, May 4, 1999).
>
> We meet with the proponent at the presubmission stage to make clear our expectations. The only other groups we meet with are on request. We assign a contact person to the proponent (Bud, July 5, 1999).
>
> At the presubmission stage, the department does nothing with the public, only the proponent (Lionel, May 18, 1999).

> ...we very often meet with the proponent and their consultant leading up to, and when, the EIS study is being done to answer questions regarding things like methods and inventories (Cab, June 30, 1999).

In terms of support for members of the public, government agencies were willing to respond when requests were made for general information. As noted in the discussion on accurate and complete information (Section 4.1.1), all jurisdictions also had guidance documents to explain the process and opportunities for public participation. However, how adequately these materials provided guidance varied greatly. Further, although the guidance documents and government officials encouraged the public to provide written submissions, they did not assist members of the public in preparing submissions. That is, they did not provide assistance in analyzing and responding to the EIS and other case documents. When asked about this, EA managers indicated:

> No [assistance]. Our role is a neutral third party (Bud, July 5, 1999).
>
> It is difficult for them to prepare written submissions but we offer no assistance (Cab, June 30, 1999).
>
> The department provides notice and makes information available only (Gil, June 28, 1999).
>
> We do not give any indication to participants about how to prepare a brief (Erskine, May 14, 1999).

This lack of assistance to members of the public is not unexpected given the results discussed in Section 4.1.2, which indicated that proponents had primary responsibility for public involvement in all jurisdictions except British Columbia and Canada. One could question whether it is appropriate for government officials to provide project-specific assistance to the public since doing so could jeopardize the government's position as neutral arbiter of proposals acting in stewardship of the environment. However, since considerable project-specific assistance is already provided to proponents, help for the public would merely balance a process weighted in favour of industry.

4.1.6 Opportunity to have arguments evaluated in a systematic fashion

The sixth and final of the ideal conditions of learning is ability to assess arguments in a systematic manner and accept a rational consensus as valid. For use at a process-level of

analysis and to avoid epistemological debates over the nature of rationality, this variable was adapted as opportunity to have arguments evaluated in a systematic fashion. Echoing earlier sections, problems associated with this variable relate to decision making, particularly exclusiveness and lack of responsiveness (Jeffery 1991; Delicaet 1995; Gibson et al. 1995; Nikiforuk 1997). To address these issues, the criterion was operationalized by examining three indicators: Is there an impartial decision maker? Does transparency exist in decision-making processes? Do systems exist for the integration of public submissions?

4.1.6.1 Is there an impartial decision maker?

In each of the jurisdictions, the Minister responsible or Minister and Cabinet had ultimate decision-making authority for EA approvals, but in practice project EA decision making was usually delegated to officials. In the federal system, for example, the Minister and Cabinet had direct responsibility for decisions in relation to comprehensive studies and panel reviews, representing less than 1% of the total number of EAs carried out each year. The impartiality of decisions made at all levels can only be assessed on a case-by-case basis, but policies and ideologies of the government of the day likely affect the decisions taken. To support decision making and add transparency, the Ministers responsible in all jurisdictions had authority to convene a public hearing in some circumstances to consider a proposed undertaking. Hearing panels, favoured by ENGOs, are often equated with more impartial decisions because they operate at arms-length from government and proponents and bring increased certainty to the process. However, as noted previously, panel reviews were not the preferred decision-making path for EA in Canada, with certainly no more than 5% of cases going to panels nationally.

4.1.6.2 Does transparency exist in decision-making processes?

Transparency is an indirect indicator of the criterion examined because it permits members of the public to appraise the opportunities of having their submissions evaluated systematically. As discussed in earlier sections, there was substantial evidence of continuous improvement on the part of government EA agencies based on input received from the public (e.g., changes were frequently made in project design) but such changes were often not evident to

members of the public. In other words, transparency was lacking at many of the key decision-making junctures of the EA process. An exception was during the public hearing phase where clear and accessible public records were typically maintained. However, as indicated in the foregoing paragraph, projects were submitted rarely to public hearings.

4.1.6.3 Do systems exist for the integration of public submissions?

Whether systems exist for the integration of public submissions is an indirect indicator of opportunities to have arguments evaluated in a systematic fashion. If such systems exist, it suggests that public input is valuable and worthy of incorporation into decisions taken. The data indicated, however, that direction was rarely provided by government agencies concerning how proponents should use the information collected during public consultations. There was mention of the need for "integration" of public concerns with the EIS but this was often unclear. Also, in some cases there were directions to proponents to indicate in the EIS how the concerns of the public were addressed, but there was little guidance on how to identify and select the most important issues and main themes expressed by the public.

4.2 Choosing the case studies

4.2.1 Selecting the Maple Leaf case

As referred to in Section 3.2.5, my original proposals for selecting the case studies were not implemented fully due to adaptations made during the research. I focused initially on the Maple Leaf case for the purposes of writing a short news article. However, after learning more about the case, it became apparent that it held significant potential as a candidate for my primary case study. With respect to case selection criterion (1),[17] the document data and the government interviews did not reveal evidence regarding the presence of non-formal, adult education conducted by ENGOs. To investigate this further, I collected data from two ENGOs active in the case. As noted in Section 3.4.2.1, personal interviews were conducted with officials from the Westman Community Action Coalition, located in Brandon, and the

[17] The case selection criteria are listed in Section 3.2.5.2, page 37.

Friends of the Assiniboine River Basin, located in Portage la Prairie. Based on the interviews and on a review of documents obtained from the interview participants, it became readily apparent that both organizations had attempted various types of non-formal, adult education.

Regarding criterion (2), a preliminary analysis permitted comparison of the EA process applied in the Maple Leaf case with the ideal conditions of learning. At an extensive level of analysis, the tentative ranking of Canadian EA legislation suggested that Manitoba had an average or middling process (Appendix 4). Section 4.1 was consistent with this evaluation, revealing several strengths in the Manitoba process offset by numerous weaknesses, and few, if any, exemplary features. Moreover, at a more intensive level, the analysis revealed that the Manitoba process was applied in restricted manner in the Maple Leaf case, namely, the development was divided into two parts, each of which was assessed in stages. Therefore, in view of the ideal conditions of learning, the case represented a restricted application of a middling EA process.

With respect to selection criterion (3), circumstances existed that approximated a disorienting dilemma. First, the case involved numerous publics engaged in various levels of conflict. Second, there was relatively high uncertainty over several of the project's most serious potential impacts. In relation to criterion (4), the case contained numerous favourable practical factors. Being in Brandon, the case was located within a reasonable driving distance (200 km), which permitted repeated visits for data collection. In addition, since I had lived in Manitoba for most of my life and in Brandon for four years, I had a personal interest in the case and a strong sense of place respecting the location. Finally, since the case originated in 1997 and was ongoing when I started data collection, the criterion of recency was satisfied.

4.2.2 Selecting the Salmon Aquaculture Review

At the same time as I explored the Maple Leaf EA, I collected information on potential case studies in British Columbia. Based on case documents downloaded from the B.C.

Environmental Assessment Office web site and specific suggestions received from committee members, I soon focused on the Salmon Aquaculture Review. With respect to case selection criterion (1), as with the Maple Leaf case, the document review did not reveal data regarding the presence of non-formal, adult education. In response, I conducted a telephone interview with an ENGO active in the case, the Nanaimo-based Georgia Strait Alliance. In the interview, I learned that several ENGOs engaged in non-formal, adult education during the Salmon Aquaculture Review.

With regard to case selection criterion (2), the initial extensive analysis gave B.C. a high placement in the ranking of Canadian EA processes (Appendix 4). Likewise, although section 4.1 identified both strengths and weaknesses in the B.C. process, it revealed several exemplary features, such as government control of public involvement programs, legislated provision for continuous exchange public involvement mechanisms, and legal requirements for consideration of need and alternatives. At the intensive level, the analysis revealed that the B.C. process was applied in an expansive manner in the SAR case, namely, the case involved an inclusive, strategic assessment that used deliberative public involvement techniques. In terms of the ideal conditions of learning, therefore, the Salmon Aquaculture Review represented a good application of a strong EA process, and this contrasted with the Maple Leaf case. At the same time, although the EA processes were not alike, the two cases were similar in that they both pertained to the intensive production of animal protein for human consumption. One was agriculture while the other was aquaculture, but they shared similar types of socioeconomic implications and potential environmental impacts.

With respect to case selection criterion (3), similar to the Maple Leaf case, the Salmon Aquaculture Review involved numerous and diverse publics engaged in significant conflict. As well, the case contained substantial uncertainty over potential environmental impacts. In regard to criterion (4), SAR was characterized by several favourable practical factors, including my long-standing interest in strategic environmental assessment. In addition, early into the extensive phase of the research, I learned of an opportunity to travel to B.C. and conduct fieldwork on the case. Finally, respecting criterion (5), the case was fairly recent. The final report and recommendations were produced in August 1997, and at the time of

making the decision about the case studies, the government had yet to make a decision on the report.

4.2.3 Selecting the Green Commuting Project

Well into the Maple Leaf and Salmon Aquaculture Review case studies, I was invited to present a conference paper on the congruence of barriers to public involvement in environmental assessment processes and local climate change initiatives. While researching the paper, I followed the prompt of a committee member and did a small case study of the Green Commuting Project, a local initiative in Winnipeg that focused on promoting increased awareness and action to reduce greenhouse gas emissions. From my investigations, I concluded that the project, although not an environmental assessment, provided an opportunity for comparison with the Maple Leaf and SAR cases. The Green Commuting Project represented a different sort of environmental planning and decision-making process, but still depended on public involvement and non-formal, adult education. In addition, the project was ongoing and many of the experiences of its officers and staff were current. Further, the project was located in Winnipeg and was very accessible for data collection.

4.3 Summary

In some respects, EA processes in Canada included reasonable measures to provide accessible and complete information to EA participants. For example, nine of the 11 jurisdictions maintained some form of public registry, seven offered Internet sites devoted solely to EA, and all of the jurisdictions posted some form of guidance documents on their Internet sites. In addition, seven of the sites offered access to project documents placed on the public registry, and all of the sites listed contact links for more information on EA. Further, all of the jurisdictions had clear and consistent notice provisions for public hearings.

However, there is considerable room for improvement in the provision of accessible and complete information. Of the nine jurisdictions that maintained a public registry, only six

provided access to the registry through the Internet. As well, only four provided access in regional offices or through regional partners. Further, in some jurisdictions, EA officials expressed concern over the quality or quantity of registry information available on the Internet. Related to this is the quality of the guidance documents posted on the Internet. Only five of the sites provided access to detailed guidebooks, with the others providing access to summary documents. Moreover, although all of the Internet sites referred to public involvement, only four offered detailed information on how interested publics could become involved in the process. In addition, only three of the sites gave access to public comments that had been filed, and only two had search engines specific to the department responsible for EA. Further, in only two cases were links provided for searching departmental libraries, and only six jurisdictions provided access to primary legislation via the Internet. Finally, the data revealed a problem with the readability of EA documents and with no clear solutions or common approaches to making the documents user-friendly.

With respect to freedom from manipulation or control, in all but one jurisdiction the proponent had largely unfettered authority over how public involvement proceeds, outside of a hearing situation. It also reported that proponents were given little guidance in developing public involvement programs, and that standards were not available for gauging the adequacy of proponent-driven programs. For some EA officials, the reliance on proponents for public involvement programming was problematic, and for ENGOs it undermined the credibility of the entire process.

Examination of openness to diverse perspectives revealed that in nine of the 11 jurisdictions there was substantial evidence of continuous improvement in regard to public involvement programs. Continuous improvement was also manifest in changes to specific project proposals and to the EA process itself. However, it was also revealed that the extent to which EA law and policy in Canada requires consideration of need, purposes, and alternatives was inconsistent. With only one exception, there were no clear legislative requirements for consideration of need, and there were no universal requirements for consideration of alternatives. This could limit the scope of issues considered through public

involvement. Finally, consultation at normative and strategic levels of planning was rare, and consultation at the operational level was sporadic.

Opportunities to reflect critically upon presuppositions were quite limited. Feedback to participating publics was lacking, and opportunities for unlinked, long-term, critical learning were minor components of public involvement programs. Most of the education opportunities lacked the interaction among community members often necessary for the development of political action and counter discourses.

Examination of equitable opportunity to participate revealed little to support the contention of a bias in favour of directly affected publics, except for two jurisdictions. Also, all jurisdictions provided some opportunity for interested publics to submit written comments if an EIS was prepared, and all had clear guidelines on the process to be followed in the event public hearings were required. Further, government agencies were willing to respond to members of the public when requests were made for general information, and all jurisdictions had guidance documents to explain the EA process, including general opportunities for public involvement. Conversely, as noted earlier, public opportunities for early involvement were sporadic, and opportunities for involvement in later phases (other than at public hearings) were often not enshrined in the legislation. In addition, the processes by which public involvement could occur were often not clearly established. With respect to funding, only four jurisdictions had mechanisms for participant funding. In each of these, funding was rarely provided or the scope of the program was limited. With respect to the form of public involvement, the use of active participation mechanisms was limited. Most jurisdictions relied heavily on open houses, and few examples of mechanisms for continuous exchange were found. Finally, government support to proponents was clearly disproportionate to that provided to the public.

With respect to the opportunity to have arguments evaluated in a systematic fashion, decisions on development proposals were typically made by EA officials, although ultimate authority usually resided at the political level. It also revealed that transparency was lacking at many of the key decision-making junctures of the EA process, outside of the public

hearing phase. Further direction was rarely provided by government agencies as to how proponents should identify and select the most important issues and main themes expressed by the public.

Overall, although Section 4.1 revealed primary strengths, including information provision and selected dimensions of openness to alternative perspectives, conspicuous weaknesses were evident in processes that were not free from manipulation or control and did not provide equitable opportunity to participate. As well, deficiencies were found regarding incomplete information and inadequate opportunities to reflect critically upon presuppositions. Each of the deficiencies presents individual hurdles to public involvement, and hence learning through involvement. Compounded, however, they present formidable barriers, for example, the effects of lack of government assistance to public participants, the unavailability of participant funding, and the paucity of detailed, user-friendly guidance documents. Similar are the effects of devolution of responsibility for public involvement to proponents, the lack of standards or guidelines for proponent-driven public involvement, and the propensity of proponents to rely on open houses.

These and other process issues are investigated in more depth in Chapter 5. Since the case studies permitted intensive examination of individual learning, and involved varying EA processes and conditions of learning, the ensuing cross-case analysis deepens the results presented in this chapter.

Chapter 5 : Learning through involvement in EA

> Democracy means discussion, the chance for the "force of the better argument" to count as against other means of determining decisions (of which the most important are policy decisions). A democratic order provides institutional arrangements for mediation, negotiation and the reaching of compromises where necessary. The conduct of open discussion is itself a means of democratic education: participation in debate with others can lead to the emergence of a more enlightened citizenry. In some part such a convergence stems from a broadening of the individual's horizons. But it also derives from an acknowledgement of legitimate diversity – that is, pluralism – and from emotional education. A politically educated contributor to dialogue is able to channel her or his emotions in a positive way: to reason from conviction rather than engage in ill thought through polemics or emotional diatribes.
>
> – Anthony Giddens, The Transformation of Intimacy, 1992

This chapter moves the discussion from an extensive examination of learning conditions in EA public involvement systems to an intensive investigation of learning by individuals involved in specific EA cases. In doing so, it focuses on the second research question: What are the forms of and constraints on learning by individuals who participate in EA processes in Canada? Section 5.1 presents abridged histories of the three cases. Section 5.2 discusses forms of learning, relying on the transformative concepts of instrumental and communicative learning and changes in meaning schemes, supplemented with both etic and emic constructs. Section 5.3 diverges from the qualitative approach used throughout the dissertation by taking an extensive, quantitative view of associations among potential explanatory variables. Finally, Section 5.4 reviews constraints on public involvement in EA, centering on barriers to learning through involvement.

5.1 Abridged case histories

5.1.1 Maple Leaf's Brandon hog processing plant

The Maple Leaf case involved the construction of a $120 million hog slaughtering and processing facility and a $13.5 million (e.g., Fallding 1999a; McNeill 1999) wastewater treatment plant in Brandon, Manitoba (Figure 5.1).



Figure 5.1: The Maple Leaf Pork Brandon Facility (Diduck). The plant is on Richmond Avenue in an industrial zone on the eastern edge of the city. The photo looks north from Richmond and was taken in August 1999, two weeks prior to the plant beginning operations.

The slaughter house is owned by Maple Leaf Pork, a subsidiary of Toronto-based Maple Leaf Foods, the country's largest food processor with 1999 sales of $3.8 billion (Canadian Press 1999a; 1999b; Nickel 1999b; Canadian Press 2000). The waste treatment plant is owned by the City of Brandon, Manitoba's second largest city with a population of 39,175 in 1996 (Statistics Canada 1996). Brandon is located on the Assiniboine River, approximately 200 km west of Winnipeg (Figure 5.2).

The hog processing plant was designed for two shifts, the first of which started on August 30, 1999 (Fallding 1999c). Under its operating licence, the plant was authorized to slaughter and process up to 54,000 hogs per week in a single shift. The second shift, expected to begin in 2003 (Nickel 1999a), could double the plant's output. Effluent from the plant is treated at the City's new wastewater treatment facility, which involves a staged system including covered anaerobic lagoons, aeration, and ultraviolet disinfection (City of Brandon 1998a). The

discharge from the wastewater facility, which goes directly into the Assiniboine River, could be up to 5,725 m^3 daily under the one shift scenario (Fallding 1999b). This would increase the daily volume of waste from the City of Brandon by more than 40%.[18]

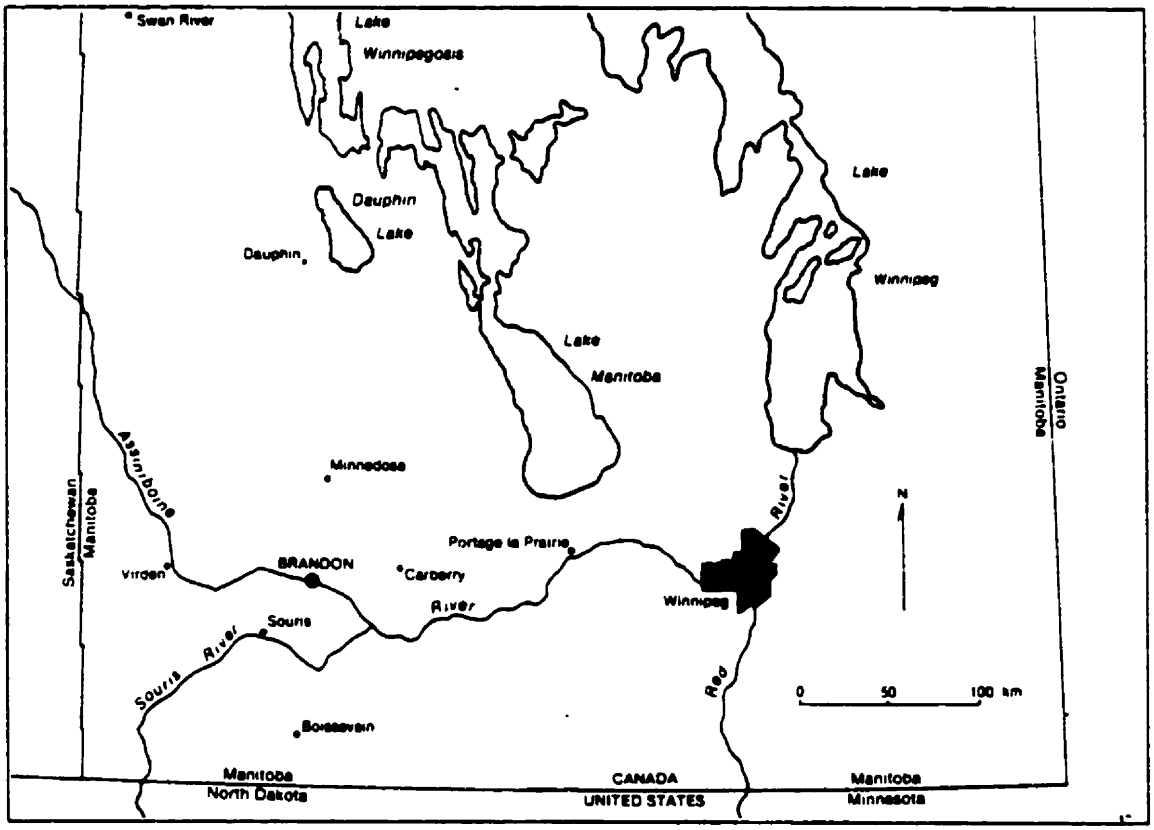


Figure 5.2: Southwestern Manitoba, Canada (After Welsted 1988)

According to Maple Leaf Pork President Michael McCain, the hog processing plant was located in Brandon "after some nine months of investigation and engineering efforts that surveyed and received responses from 42 communities throughout Western Canada" (McCain 1997). The ultimate selection decision was brokered at political levels and included direct negotiations among Mr. McCain, Manitoba Premier Gary Filmon and Brandon Mayor Reg Atkinson (e.g., Redekop 1997). Brandon was selected for a number of reasons, not the

[18] The average daily volume of waste from the City of Brandon from 1995 to 1997 was 13,704 m^3 (City of Brandon 1998b).

least of which were provincial and municipal subsidies given to the company amounting to nearly $20 million (Fallding 1999a; O'Brien 1999).

From the beginning, the project was contentious, particularly in Brandon and the surrounding area (e.g., Barbour 1997; McArthur 1997). Supporters focused on the potential economic benefits, which included up to new 2,100 jobs (Nickel 1999a) and a population increase of more than 7,000 by the year 2007 (City of Brandon 1999). Critics expressed concerns regarding the lack of transparency in the decision to court Maple Leaf and the merits of providing public subsidies to corporations (Copps 1997).

When the projects entered the environmental assessment process, which was conducted under provincial legislation, the business community supported the projects. In many cases, the Brandon Chamber of Commerce or the Citizens for Responsible Growth, a local nongovernmental organization that formed during the EA, orchestrated the expressions of support. In total, the provincial environment ministry received 104 letters in favour of the projects. Critics, mobilized by the Westman Community Action Coalition (another NGO that formed during the assessment), continued their opposition, with the environment ministry receiving 53 letters and two petitions (with a total of 481 names) that were critical of the projects. Concerns included potential negative impacts on the community, e.g., increased traffic and increased demands on social service systems, and adverse effects on the environment, including increased levels of phosphate, ammonia, and other nutrients in the Assiniboine River. Concerns were also expressed by Long Plain First Nation and Portage la Prairie, downstream communities that obtain their drinking water from the Assiniboine (Figure 5.3).

Two contentious issues were raised related to the environmental assessment process itself. The federal environment ministry was critical of Manitoba Environment's decision to divide and stage the assessments (e.g., Briscoe 1998; Fallding 1998b; Spring 1998). That is, rather than requiring a comprehensive assessment, Manitoba Environment treated the development as two distinct projects (i.e., the processing plant and the wastewater treatment facility), divided each into stages (e.g., preconstruction, construction, and operation), and conducted

assessments of individual stages. As well, the Westman Community Action Coalition was critical of Manitoba Environment's decision to not hold public hearings, despite significant public demand and considerable uncertainty over potential impacts on the river (e.g., Fallding 1998a; Werier 1998; Diduck 1999b).

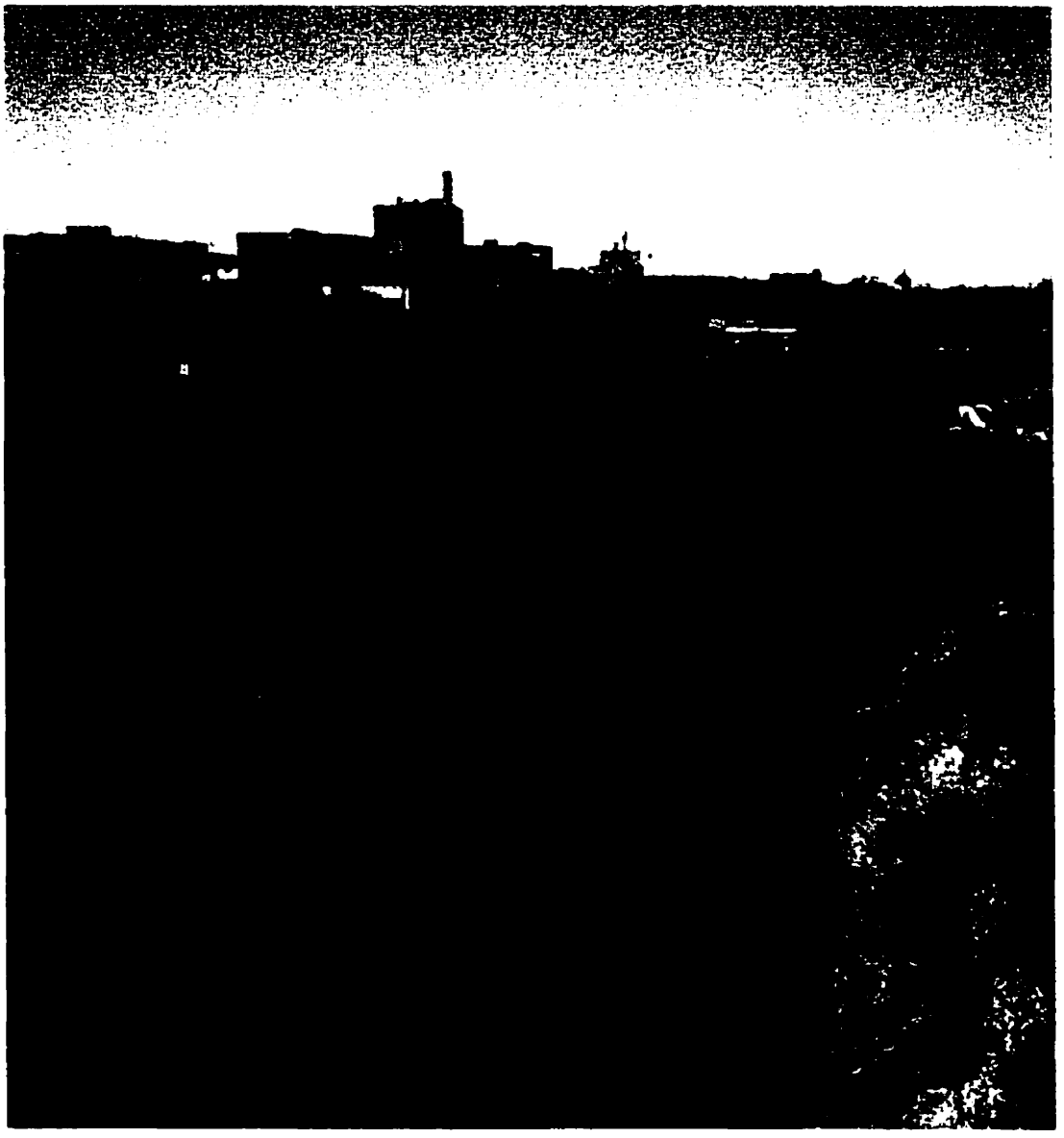


Figure 5.3: A Southwesterly View of the Assiniboine River from the First Street Bridge, Brandon, October 1999 (Diduck). The Assiniboine is a typical prairie river with a slow flow, meandering form, and gentle gradient. Along a channel length of 10.5 km, from just west of the City of Brandon to the First Street Bridge, it falls only 1 m (Welsted 1988).

Although public hearings were not held, the environmental assessments did include opportunities for passive public involvement, e.g., use of the public registry, provision of comment periods, and access to administrative appeal procedures. They also included ten public information meetings organized by the project proponents (the City of Brandon and Maple Leaf Pork) held over 18 months, from January 1998 to June 1999. Eight of the meetings were held in Brandon while two were held in Portage la Prairie and Long Plain First Nation. Also notable was a three-day forum (the Citizens' Hearing on Pork Production and the Environment) held in Brandon in October 1999, organized by the Westman Community Action Coalition partly in protest of the decision by the provincial environment department not to hold public hearings.

Brandon's successful bid for the Maple Leaf plant was a critical element in a long-term, provincial policy to promote the hog industry in Manitoba. The policy was based in part on a perceived need for greater agricultural diversification, following the elimination of federal grain transportation subsidies (Pork Information Alliance 1997; Manitoba Pork Council 1999; Winnipeg Free Press 1999). Subsequent to approvals being granted in the Maple Leaf EAs, the policy continued, surviving an October 1999 change in provincial government (from a Progressive Conservative government led by Gary Filmon to a New Democratic Party government led by Gary Doer). In February 2000, after months of highly politicized negotiations, the NDP government announced over $9 million in subsidies to J.M. Schneider to support a $125 million expansion of its hog processing plant in Winnipeg (Nairne and O'Brien 2000). J.M. Schneider is owned by Virginia-based Smithfield Foods, the world's largest hog processor, with sales of $3.9 billion in fiscal 1998 (Meat and Poultry 1998). At the same time as announcing the subsidies to Schneider, the government outlined a land use planning initiative regarding intensive livestock production, and indicated that the Schneider expansion would be subjected to a provincial environmental assessment (Fallding 2000; Nairne 2000).

5.1.2 The Salmon Aquaculture Review

The Salmon Aquaculture Review (SAR), a secondary case study, was the first assessment conducted under section 40 of British Columbia's Environmental Assessment Act of 1994 (Davidson 1999; Stinchcombe 1999). Section 40 is unique in Canada in that it authorized strategic EAs, or broad assessments of processes, practices, and procedures (British Columbia Environmental Assessment Office 1995b).

The SAR was initiated by the B.C. government in May 1995 due to mounting concerns about the sustainability of salmon aquaculture and growing conflicts among competing resource uses. The review was established to assess the regulatory and policy framework of British Columbia's salmon farming industry (British Columbia Environmental Assessment Office 1997c). Its mandate was to consider the risks associated with aquaculture and to recommend methods to mitigate those risks and to manage the industry better. The review did not deal with the normative question of whether the industry should exist; as one government fact sheet put it, SAR had a "how to" mandate (British Columbia Environmental Assessment Office 1997a).

The SAR concluded in August 1997 with a massive five-volume report that culminated in 49 recommendations on issues such as farm siting, escaped salmon, waste management, First Nations issues, and conflict resolution (British Columbia Environmental Assessment Office 1997b; 1997d). In October 1999, the B.C. government accepted the SAR recommendations and established a new aquaculture policy built around escape prevention, performance-based environmental regulation of waste discharges, industry and community stability in salmon farm siting, improved fish health, and alternative salmon farm technology pilot projects (British Columbia Fisheries 1999).

The Salmon Aquaculture Review, led by the B.C. Environmental Assessment Office, involved a small technical advisory team of five independent researchers who prepared discussion papers on key issue areas. The Broughton Archipelago was used as a study area to document and demonstrate the relevant issues. The SAR also involved a public review committee consisting of more than 45 representatives drawn from stakeholder groups in

various sectors, such as First Nations, ENGOs, municipalities, provincial government departments, federal departments, labour, outdoor recreation organizations, and the aquaculture industry (British Columbia Environmental Assessment Office 1997b). The purpose of the review committee was to provide advice and critical comment on the technical advisory team's discussion papers.

The SAR process included eight two-day review committee meetings, all of which were open to the public, in Campbell River, Nanaimo, Port Hardy, and Tofino. It also included public open houses in Echo Bay, Port MacNeill, Sointula, and Alert Bay. Written submissions were accepted throughout the proceedings and a total of 85 were received from the general public and review committee members. Finally, the process included passive public involvement mechanisms such as a web site and a public registry system with satellite repositories in several coastal communities.

Salmon aquaculture has long been controversial in British Columbia, and this was manifest during the Salmon Aquaculture Review. Coalitions formed within the public review committee, varying by degree of support for the fish farming industry. Critics included ENGOs, commercial fishers, First Nations, municipal governments, and outdoor recreation advocates. Supporters were led by the B.C. Salmon Farmers Association and included the federal Department of Fisheries and Oceans (Davidson 1999; Diduck Interview Notes 1999; Stinchcombe 1999). Points of contention regarding the assessment process included the breadth of the terms of reference (e.g., failure to consider the null alternative), the scope of potential impacts examined (i.e., restricted to the Broughton Archipelago and British Columbia), and a lack of participant funding (British Columbia Environmental Assessment Office 1996; Diduck Interview Notes 1999). With respect to the SAR final report, a controversial issue was the degree to which the central precept of the precautionary principle was respected.[19]

[19] Simply put, the central idea of the precautionary principle is that an ounce of prevention is worth a pound of cure. A corollary is that, facing potential threats of serious or irreversible environmental damage, lack of scientific certainty should not be used as a reason for deferring cost-effective preventative measures (e.g., United Nations Conference on Environment and Development 1992, principle 15).

5.1.3 The Green Commuting Project

The other secondary case study was the Green Commuting Project, a local climate change initiative in Winnipeg, Manitoba. Local initiatives have been Canada's primary approach to public education and outreach respecting climate change, and public education and outreach are recognized internationally as important policy responses to global warming dilemmas (United Nations 1992, article 6; 1997, article 10; Public Education and Outreach Issue Table 1999). Public involvement is a sine qua non of local climate change initiatives and typically focuses on encouraging broad or strategic participation in a service or a project.

The Green Commuting Project was sponsored by Resource Conservation Manitoba, a non-profit organization and registered charity that promotes "applied, ecological sustainability through environmental education and the development of alternatives to currently unsustainable practices" (Resource Conservation Manitoba 2000). Resource Conservation Manitoba services include a newsletter, an information telephone line, a speakers bureau, an annual conference, and special initiatives such as the Green Commuting Project. The commuting project focuses on promoting increased awareness and action to reduce greenhouse gas emissions, and on healthy lifestyle choices associated with active transportation (Green Commuting Project 2000; Stuart 2000).

The particular service of the Green Commuting Project that was the focus of this research was the Winnipeg Commuter Challenge. The commuter challenge is an annual event that occurs nationally during Environment Week (June 5-9) and has taken place in Toronto, Ottawa, and Calgary for years. In the commuter challenge, organizations and individuals compete by scoring points for using alternative means of commuting, such as cycling, rollerblading, carpooling, walking, and running. In 2000, Green Commuting Project staff organized Winnipeg's first commuter challenge and recruited participants in the private, public, and nonprofit sectors. Over the week, nearly 1,500 people per day participated from 36 workplaces, and Winnipeg placed fifth among 35 communities across Canada (Winnipeg Free Press 2000).

5.2 Forms of learning

This section describes forms of learning identified in the Maple Leaf and SAR cases. The data presented in this section were obtained through interviews with people involved in the cases. The interview participants were asked what they learned at specific events in the Maple Leaf and Salmon Aquaculture Review EAs. They were also asked what lessons they derived from the cases as a whole. In addition, I made inferences regarding what was learned based on responses to other interview questions.

5.2.1 Instrumental learning

The analytic framework used in this section adopted a primary, etic category drawn from transformative theory: instrumental learning. Within the primary category, there were four secondary, etic categories, all of which were subdivided into tertiary, emic categories (Table 5.1). The tertiary categories were further subdivided into topics presented in greater detail in the ensuing discussion. Broad parameters for the primary category were provided by the definition found in transformative theory: instrumental learning helps people control or manipulate the environment. Development of the secondary categories was informed by the empirical evidence reviewed in Section 2.4.3. The tertiary and quaternary categories were developed following the approach respecting emic classes described in Section 3.5.1.

5.2.1.1 Scientific and technical knowledge

5.2.1.1.1 Waste treatment

An important form of instrumental learning in the Maple Leaf case was scientific and technical knowledge. Given the nature of the projects, it is not surprising that a significant subcategory of scientific and technical knowledge was waste treatment. For one particular official with the City of Brandon, his newly acquired knowledge respecting waste treatment created opportunities for the city:

> I had to learn a whole bunch about something I wouldn't normally know about, which is waste treatment and I feel almost comfortable in setting an engineer board exam on the whole process. But to be serious about it, I do know a whole bunch about waste

control now that I wouldn't before and it has led me into some other areas of interest and led the city to do some really innovative work that will come out in public in the not too distant future (Duke, November 17, 1999).

Table 5.1: Forms of Instrumental Learning Acquired through Involvement in EA

PRIMARY (ETIC) CATEGORY	SECONDARY (ETIC) CATEGORIES	TERTIARY (EMIC) CATEGORIES
instrumental learning	scientific and technical knowledge	waste treatment not rocket science
	legal, administrative & political procedures	control of the process efficacy of involvement holism in EA prospects for democracy
	social and economic knowledge	family farm globalization labour markets
	potential risks and impacts	biophysical community/social jobs and the economy personal health

For a member of the Westman Community Action Coalition, knowledge respecting waste treatment helped in monitoring the proponents:

> I discovered a number of things that are interesting. That the effluent from the Maple Leaf plant goes down a pipe into the anaerobic lagoon. That the liner beneath the lagoon is leaking at a rate of 100 liters an hour. Now, that sounds like a large amount but how much seepage that amounts to depends on what the surface area of the lagoon liner is, because 100 liters over 10 hectares is relatively small. But there is no indication of what the actual seepage rate is. Their licence limits them to a certain seepage rate so now I am trying to get a hold of the surface area of the liner and do the calculation myself. So, it is sort of fun (Louis, January 22, 2000).

5.2.1.1.2 Not rocket science

Another significant subcategory of scientific and technical knowledge, not rocket science, reflected that several participants in the Maple Leaf case learned that treatment of waste from meat processing plants was relatively simple and certain. For example, interviewees said:

> It hasn't caused me any particular paranoia living in Portage la Prairie because I don't think that putting up a hog processing plant is rocket science any more. It has been done before and I am fairly confident they will be able to deal with what comes out of the place (Nat, February 22, 2000).
>
> One of the things that I learned, which I was most interested in about the Maple Leaf plant, was the water treatment process and they had charts and diagrams and the whole thing there. And I was interested to learn that these are not new. These are the same systems which have been approved over a number of years and the same system they are using in a lot of places. They are really very, very simple but very, very effective (Miles, January 31, 2000).

In contrast to the lesson that waste treatment was simple and certain, one participant, who was a member of the Brandon City Council and a supporter of the project, said that he learned of the uncertainty of waste treatment:

> Well, probably, that the engineering science of dealing with water pollution and even the scientific measurement of water pollution isn't all that exact. It is still a cake that is being baked. And that there are new ways, ultraviolet I think is a new treatment system, that they could have spent a couple million more to get. But that it wasn't nearly as definite and as nailed down as I might have expected (Charlie, February 1, 2000).

5.2.1.2 Legal, administrative, and political procedures

5.2.1.2.1 Control of the process

Another form of instrumental learning identified in the Maple Leaf case was knowledge respecting legal, administrative, and political procedures (Table 5.1). A subcategory here was control of the process, which captured the belief among project critics that the EA process was controlled by the proponents:

> Our provincial Department of the Environment, they didn't come across as overly competent. I feel that industry is dictating to the department how things should be done and I don't think that should be the case ... it should be the other way around (Ella, February 21, 2000).

5.2.1.2.2 Efficacy of involvement

A further subcategory of legal, administrative, and political procedures was efficacy of involvement, which contained lessons about the public involvement process used in the

Maple Leaf case. Not surprisingly, proponents and critics derived dissimilar lessons. Officials with the City of Brandon indicated satisfaction with the techniques they used, in particular the public information meetings. For example, one said:

> If we had another one, say, another major wet industry came here, which is about the only thing I can think of right now that would encourage it, I would look to doing it exactly the same way. There will be pressure not to, to not have all these public meetings because they were perceived as being somewhat divisive by some. And I think just the opposite. I think they were an excellent process (Duke, November 17, 1999).

In contrast, critics, such as this member of Westman Community Action Coalition, expressed strong dissatisfaction with the information meetings and with the entire public involvement system:

> And I mean we could tell right off that [the meetings] were going to be stage managed, spin-doctored, we'll answer your questions, but we'll set the agenda you know, about what questions are askable and which aren't, how many kicks you have at the can and what will be in bounds and what will be out of bounds. And, then we'll say we've had a good community discussion, and the community has had input. But I mean there was never any question even from the very start that the community or anybody in the community would actually have a chance to say something that might veto the decision, or substantively change the decision. A year and a half with WCAC on this hog plant thing, I felt like almost all of the time was total wheel-spinning and pro-forma exercises that not even the people participating in them believed in. ... So correspondingly, I stepped back, and said guys, you know I think we're spending a lot of money and time here, plotting against a system which is designed to take exactly this sort of assault. We are throwing ourselves against well-designed defenses that have been put in place precisely for us. And the purpose of these defenses is to exhaust us and to divert our energy. You're shooting at a deflector shield that's been put in place for the purpose. Why do that, why not find another way in ... we need to get at the head end of the snake. We need to get into the machinery of how development decisions are made in the community, from the get go. Because playing catch up ball, you know after a secret agreement has already been signed, the concrete has been poured, it's just not on. There is no way we're going to jackhammer up Maple Leaf now even if we established factually that it was an environmental and social disaster (Oscar, November 19, 1999).

Sentiments such as those expressed above, in particular the desire for involvement at normative levels of planning, were echoed by critics in the Salmon Aquaculture Review, one of whom said:

> Well, if we had a little more foresight in our strategizing away from the table, we would have shaped the terms of reference more so than sort of the piecemeal effort than we did. We thought we wouldn't push the envelope too much with that. We'd just participate heavily in the process but the terms of reference were pretty much paramount to determining the outcome of this particular review. Had it been a little more expansive in its ability to assess the industry, most assuredly it would have a different outcome (Coleman, October 1, 1999).

5.2.1.2.3 Holism in EA

A further subcategory of legal, administrative, and political procedures accommodated lessons derived by government officials pertaining to holism in EA. A provincial EA official expressed it in terms of subdividing the project into parts, and with respect to the need to integrate EA and planning:

> The lesson is, certainly from my perspective, I'm not sure if it is the government perspective, but my perspective as a practitioner, is don't break a development. I mean, logic told us and I think everyone that this was one development – the hog processing plant and the wastewater treatment system and logically it should have been all dealt with in one proposal, one process. Secondly, I think for major developments you have to get involved earlier in the game. You can't just wait until a city like Brandon persuades a client to come there and put up a major development and say, well, that is where it should go. I think you have to get into more of the front end of the decision making, the planning aspect of it to ask and decide on the questions: Is that the place it should go? Is there a better place for it to go from an environmental perspective? So I think those were the two main lessons that I would learn from this case (Ornette, January 28, 2000).

A federal official stated it in terms of the need for strategic assessments:

> Up until now strategic environmental assessment to me was when the federal government would look at real big picture items that affected all of Canada. But for provincial policies just within provincial boundaries, it just really makes a lot of sense that every province should have that kind of a strategic EA requirement. The environmental impact issues related to a specific project are really almost insignificant if compared to the major impacts that could occur by not doing a strategic assessment. And, I think the impacts of not just major hog processing plants, but also the issue of large hog rearing facilities and the potential adverse impacts on Manitoba far outweighs building one facility in one spot. And, in the absence of that, if you build a plant you are almost on this treadmill you can't get off, where now you obviously can't make it hard to raise pigs now that you've got this multimillion dollar facility to process them (Thelonius, November 10, 1999).

There was also data on holism from an interview participant in the SAR case, who warned about potential pitfalls stemming from the large scope of strategic assessments:

> This is a fairly innovative provision in the legislation and I think it is a good part of the B.C. legislation compared to some of our environmental assessment Acts. It is very interesting to be able to look at an ongoing management regime and ask are there things we can do to improve this from a holistic perspective. But in some ways the review was a bit unmanageable by its volume and the numbers of people involved (Billie, September 29, 1999).

5.2.1.2.4 Prospects for democracy

Prospects for democracy, a further subcategory of legal, administrative, and political procedures, reflected a mistrust of government and an alienation from democratic values. Such ideas were expressed not only by active critics of the Maple Leaf project (represented in the first two quotations below), but also by government officials (the third quotation) and non-participants (the final quotation).

> I found the whole exercise very discouraging and very disillusioning. I'm quite cynical of the prospects for democracy and for development processes in communities which will lead to sustainability, which will lead to a synergy of environmental well being, which is socially equitable and economically realistic (Oscar, November 19, 1999).
>
> One lesson is that the NDP is no different from the Conservatives but that is hardly an astonishing finding. I see that the NDP government is really undertaking to pick up where the Filmon government left off. Their vision of the way food production should happen in the Province of Manitoba, to be as general as I can, is no different than the way that the Filmon government did things. Certainly in the pork industry, I don't see any difference. They want 10 million hogs in production, they don't want to see single desk marketing coming back.[20] They believe in striking deals with large monolithic transnational corporations. They believe in keeping those deals secret from the public. The government says they are going to hold a Clean Environment Commission hearing but they have specified that it is going to be narrowly scoped so it is going to explicitly exclude from its terms of reference the impact of raising 10 million hogs. It is only going to look at the Schneider plant, which violates one of the more basic principles of sustainability (Louis, January 22, 2000).

[20] Single desk marketing refers to common marketing of hogs through a government-authorized, producer-controlled cartel. Such cartels, or marketing boards, were common in Canada and were a public policy response to what was regarded as exploitative practices of meat processors and packers (MacMillan and Pazderka 1989). In 1996, Manitoba Pork, initially called the Manitoba Hog Producers Marketing Board, moved from a common marketing scheme to a free trade model (Manitoba Pork Council 2000).

> We are probably going to see the same scenario with respect to Schneider, whereas this new government campaigned on a whole different platform that that sort of thing was going to go out the window. Maybe we will see it in the long term but certainly the short term is no change from what I have seen just since the new government has been in power (Ornette, January 28, 2000).
>
> I think that it has reinforced that power corrupts. ... It is sad because, really, in your 40s you start figuring, I don't trust any of these people. I kind of like to run my own life and granted you need some form of government but it seems it is pretty rare when you have competent people who are trustworthy and actually carry out the promises they went in with and so I guess that is disappointing but not surprising. So, that is what was reinforced by this (Nina, February 1, 2000).

Sentiments of alienation from government, such as those expressed above, were also found in the Salmon Aquaculture Review. The following is a statement, pertaining to government delays in responding to the review, made by a former member of the SAR staff:

> If the government wants to have a review like this done, it has to be prepared to deal with the results of the review. That is the first and most important thing that I learned from this review. I think that if you are going to go through an exercise like this and you are going to involve public resources internally in government and you are going to involve the time and energy of various parts of the body politic that are involved in an issue like this, you then have to be responsible for responding to that because I think that people otherwise feel very frustrated about having dedicated time and energy to a process and then not really feeling like the process is worth a decision. ... It is absolutely ludicrous to have an environmental assessment that takes this long and then take all this time to come to some decision about what you are going to do. So, that is the biggest thing that I learned is that you have to take people seriously if you are going to ask them to do something like this (Billie, September 29, 1999).

5.2.1.3 Social and economic knowledge

5.2.1.3.1 Family farm

Yet another form of instrumental learning found in the Maple Leaf EA was social and economic knowledge, an important subcategory of which was family farm (Table 5.1, page 95). This class caught expressions of concern for the future of independent, family farms. One person, who was an academic and a critic of the project, put it this way:

> It is not the only place we heard this but it just came home with such impact at the hearings, that the future for the family type farm operation, it looks like it's down the drain. I feel sick about that, and it was evident from the farmers who were participating felt sick about that. And, damn it, I think that this is the feeling of,

> certainly of those in the coalition, but of almost all of those who learn about what's going on who have any feeling for the community, southwest Manitoba, and the farms and the towns and the people in them. This is something that I feel should be fought and the people may be willing to fight tooth and nail (Benny, November 4, 1999).

5.2.1.3.2 Globalization

Another subcategory of social and economic knowledge was globalization, which comprised diverse lessons pertaining to issues such as:

- government subsidies to industry: "Some of the participants that I talked to seemed to get something worthwhile out of it, including the Americans. ... They just couldn't believe the money that Brandon and the province gave these guys" (Dizzy, November 25, 1999); and,
- the positive impacts of big business: "There are two things that I learned: one, that big business is not bad business" (Woody, February 22, 1999).

The strongest theme reflected in the globalization subcategory related to concerns over the impacts of globalization on local communities. The following two quotations are from project critics who spoke with some passion about the linkages between globalization and the Maple Leaf development:

> A development like this one or any kind of development is more controlled by the beneficiaries of that development rather than the community. ... Rather than moving towards more intelligent, community-based development strategies, we are moving further away from them. Through these kinds of trade, economic pacts, we just get further away as a community from being able to control these kinds of things. So, I am not sure there is a lesson except to take a long view and think that this is just another indication that things are getting worse. There has to be a change in the political will to take back, the political philosophy has to be more directed towards serving the whole constituency rather than just some sectors and shoving things down people's throats that may not be bad for them but that they may not want. The community has a right to block, if the community is at the end of a real clear kind of review of this thing, if the community had said no we don't want it, even if they were wrong, that would be preferable (Art, November 17, 1999).
>
> When Maple Leaf was here at some of these public meetings and they had, you know, one or more of the McCains were there and other people, they made it very clear, give them credit for this, they were not ambiguous. You know, the prices we pay for pigs, the wages, whatever, we are in a world market, and those are the conditions we'll

> meet. Fine, we know that, they weren't hiding that at all, and that is one of these direct effects of globalization and NAFTA. I feel that when it comes to preserving our ability to produce our own food, and to preserve our communities, God damn it, we should have barriers. You know, there are things more important than seeing that basically a handful, a limited number of multinational corporations have free reign to trade and do as they wish. There's things a hell of a lot more important than that, and so I think that a lot of us will do all we can. I don't know to what extent it's realistic to think about turning the tide, I do know that neither we nor most of the public should accept this as passively, you know that just burns me up, and you can quote me on that (Oscar, November 18, 1999).

5.2.1.3.3 Labour markets

The final subcategory of social and economic knowledge encompassed lessons concerning the effects of the processing plant on local and regional labour markets, with respect to which there was considerable uncertainty. One interview participant, who was a Brandon city councilor and a moderate critic of the project, indicated what he had learned at a recent press conference:

> Turn over hasn't been anywhere nearly as high at this plant as in a lot of plants in the U.S. and elsewhere in Canada. They have been able to generate most of the workers at the plant within the region and I went to this thing [Dr. Richard] Rounds did the other day and one of the things I was kind of expecting was that you would have a lot of farmers doing off-farm work. That is an indication that there was a lot of under employment in this region prior to the Maple Leaf plant. That is a lot of workers. That is a lot of jobs and a small population but they were able to recruit the people internally by and large. So, that is a good thing. So, I thought that was useful (Brantford, February 23, 2000).

5.2.1.4 Potential risks and impacts

The final form of instrumental learning classified in the analysis of the Maple Leaf data was potential risks and impacts associated with the project (Table 5.1, page 95). Subcategories within this class were not mutually exclusive, and data coded here were also coded to forms of learning discussed earlier. The data discussed below pertained to lessons regarding both positive and negative potential impacts, reflecting a balance expressed by many interview participants:

> It is probably good for Brandon as a whole. A certain number of positives and certain number of pretty serious negatives. Probably the positives slightly out-weigh the negatives. But I think it has been portrayed as if the positives vastly out-number the

> negatives. I think that is a little bit of a problem with how it has been promoted (Lena, February 1, 2000).
>
> There are always some negatives but it isn't anything that we can't handle and it probably isn't going to be as good for Brandon as some people thought and not as bad for Brandon as some people thought but somewhere in between, which is the way life works (Charlie, February 1, 2000).

5.2.1.4.1 Biophysical

Echoing earlier lessons respecting scientific and technical knowledge (Section 5.2.1.1), a major subcategory of potential risks and impacts encompassed concerns over biophysical effects. What people learned regarding the gravity and extent of potential biophysical impacts was diverse and often conflicting, and was associated with whether the learner was a supporter or critic of the project. This is discussed in greater length in Section 5.3, but what follows is a juxtaposition of conflicting views respecting various biophysical issues:

- air pollution: "You can't smell the plant, there are no vapors or air pollution in the normal sense, either the smell sort or big clouds of whatever" (Duke, November 17, 1999). "I have particular concerns about ammonia as an air pollutant impacting on vegetation and humans" (Dizzy, November 25, 1999).
- aquifer contamination: "Everyone talks about the Assiniboine River, nobody talks about the aquifer and to me the aquifer is maybe a bigger issue" (Sarah, January 31, 2000). "There is no ground water pollution" (Wynton, January 21, 2000).
- nutrient loading in the Assiniboine River: "Do you know the river is ankle deep in low flow and they are going to be pumping a million gallons a day, so can you imagine what kind of sewer it will become" (Stan, August 11, 1999). "There is no production of heavy metals that would accumulate in the river, that sort of stuff. It is all reversible if there is a problem" (Duke, November 17, 1999).
- impacts of intensive livestock production: "I think the thing that sticks out in my mind as learning, I learned from Maple Leaf at these meetings. They did a fair job of bringing up North Carolina, hog densities, showing that Manitoba even with the development today, we are talking hog densities no where near in the densities that Holland has or North Carolina has" (Wynton, January 21, 2000). "It was a development for a 3,000 sow hog operation that was well within a mile of several residences. At first it didn't seem to me

> that it should have affected us and that we, living in a rural area, would be for the most part acceptable to any type of development like that, that we assumed was farming. And that what it took to raise our concerns about the operation was a little talk in the community, getting hold of information from the municipality, finding out a little more about who was involved in the development" (Chet, November 25, 1999).

5.2.1.4.2 Community/social

Again echoing issues discussed earlier (see Section 5.2.1.3, regarding social and economic knowledge), another major subcategory of potential risks and impacts dealt with effects on the community. Such effects were raised not only by critics of the project, but also by ardent supporters, one of whom said "I was probably more concerned about impact on community than anything. I was concerned about Brandon's ability to absorb new populations. A new injection of people in our community" (Woody, February 22, 2000).

Potential effects on the community raised by interview participants included an influx of migrant workers, an increase in crime rates, reduced supplies of rental accommodation, and increased demands on social services. A notable potential effect pertained to impacts on family farms and rural areas. Critics saw the project as contributing to the demise of the family farm and to depopulation of rural society, whereas supporters viewed it as a means of diversification and growth. Contrast the following two quotations, the first of which is from a Brandon area farmer, while the second is from a resident of Brandon:

> I think it is going to be disruptive to the smaller family farm kind of operations. It is going to favour larger factory type hog production. I think that is negative. It hastens that process of depopulation of the rural areas and having a vibrant, economically healthy rural society. And the decline in the schools and hospitals and those sorts of things that go with that (Art, November 17, 1999).
>
> Is it going to stimulate hog production? Absolutely. That is where the benefit is for our neighbours surrounding us. They are good at growing hogs. There isn't going to be a single hog produced inside Brandon. ... Is there a possibility that rural depopulation will put the brakes on and maybe these towns will get some new life again? It is a possibility (Woody, February 22, 2000).

Divergent views were expressed on what Brandon could learn from other cities and towns with large meat processing plants. Speaking about a presentation made by an American academic at a forum organized by the Westman Community Action Coalition, an official with one of the proponents commented:

> The geographer, and my background is geography before law, made a whole bunch of statements that I found humorous more than serious. I believe he didn't understand Canada. Looking at Brandon as being equivalent to Brooks is absurd for example. There is no similarity in the communities, there is no similarity in the area where the community is located, and there is no similarity in the plants that are being established. But other than those three absolutely critical factors, there are some surface impressions (Duke, November 17, 1999).

In contrast, several interview participants were grateful for information on the experiences of other cities. A Brandon City Councilor, referring to the same WCAC event, said:

> I was there on the Sunday and my take on it again was that this is an extension of the educational process that we had been going through the last ten months or whatever and now we were factoring into our knowledge information from elsewhere, from other jurisdictions and so on and that is useful. But I think it would have been helpful if some of that information people would have got before rather than after. Nevertheless, a lot of it was useful. Some of the concerns were raised by people from the States with green field sites, turn over, and migrants and so on (Brantford, February 23, 2000).

In the Salmon Aquaculture Review, interview participants were also keenly interested in obtaining current information from other jurisdictions, but this turned out to be too costly:

> If there was something that we should have done it would have been to be firm about getting expertise from Norway. We asked for Ian Fleming from Norway, the Institute of Aquaculture there, to come and he is well versed in the impacts of Atlantic salmon, of farm salmon on wild stocks and given how expensive the review was, we rolled over when they said they didn't have enough funding to provide his airfare here. We really needed to get that into the record, what was happening in Norway, and if the union had been more involved than it was, we would have brought in the fishermen from Atlantic Canada (Sonny, September 29, 1999).

5.2.1.4.3 Jobs and the economy

A further subcategory of potential risks and impacts consisted of effects on jobs and the economy. A conspicuous debate emerged during the EA process over the economic sustainability of the development:

> A company like this and an operation like this has no loyalty. It has found a place to locate, it is going to mine that because that is what it does, that is what its objective is, is to make money, without any real regard for any long term effect. Some day it will disappear, so it is here today, it is going to be gone at some point and in between that it is basically just a mining operation. So, I have a doubt or a fear that it is really not a sustainable good development (Art, November 17, 1999).
>
> [At a public information meeting] I asked a question to the assistant engineer for Maple Leaf, what is the life expectancy of this $100 million building? And he said 40 years is what we expect it to last without any changes at all. So that kind of put the lie to the idea that they were just here for a short time, a good time and a profitable time. So, people simply weren't looking at the whole thing with a longitudinal context. They were, I would say, panicking in many cases (Charlie, February 1, 2000).

Other salient potential economic effects discussed by interview participants were job creation, secondary (or spin-off) impacts, rural diversification, government subsidies to industry, and premiums on hog prices. As with biophysical impacts, what people learned regarding potential economic effects was complex and diverse. In some cases, the lessons were associated with whether the learners were supporters or critics of the project, with supporters emphasizing positive effects and critics stressing negative aspects of the impacts. Compare these two discussions respecting job creation:

> I guess in terms of concerns, I think Maple Leaf has done a lot of things they said they were going to do. They have made a commitment to recruit Aboriginal people, they have done that. They had an early intensive program to produce that result. I think that when they move to a second shift, they will attract more Aboriginal people there. They have done a lot to accommodate employees' needs in terms of transit but that is a two way street and I mean we changed our bus runs and so on which makes sense. They are also looking at the question of day care and these sorts of things although that is something some employees wanted on the plant site, others wanted in town, so I mean there are things that need to be worked out but I think they will get involved in addressing those kinds of issues (Brantford, February 23, 2000).
>
> I have more concerns. I mean, I think basically, they are shitty jobs and a shitty job is better than no job for some people and for some people it is going to be an entry point. But I think there are very few people who would enjoy that kind of work. There is a huge amount of pressure, the high speeds and I think it is numbing. You know, I think it is emotionally numbing especially if you are involved in the kill floor. So, I feel for people who get stuck in those jobs and I think there are ripple effects in a community where you have that many people involved in work that involves killing. And the pay is lousy in my opinion. I would have to be very desperate to work in a hog plant. I would rather waitress for minimum wage than work at a hog plant for more than minimum wage and I think that a lot of the people

> who promote them as good jobs would never do it themselves and would never want their kids to do it either. So there is a certain amount of hypocrisy there (Lena, February 1, 2000).

Similarly, compare these views of the secondary spin-offs:

> I was concerned about our ability to keep up with the services of retail but it is market driven and when people show up and they are expecting certain services and certain retail, the market is there to fill that gap. I don't know of any situation where there have been people standing in line waiting to buy something and a business hasn't popped up to serve those people. It is just the way it works (Woody, February 22, 2000).
>
> Obviously, there is a section of the population in a place like Brandon that is going to benefit. Primarily service providers, retailers, and restaurants and that sort of thing. But again, that benefit increasingly is not local because a lot of that stuff will go offshore so to speak. Whether it is Wal-Mart or Superstore or those kinds of places. That money all leaves. It doesn't stay here (Art, November 17, 1999).

5.2.1.4.4 Personal health

The final subcategory of potential risks and impacts pertained to personal health effects. A theme here related to concerns over the effects of eating meat produced in factory farms:

> Aside from myself learning more about that list of parasites that are found and kinds of hormones and stuff, including heavy metals that are present, you know this wasn't completely new to me, but it sort of solidified that (Benny, November 4, 1999).

Another health-related theme dealt with bacteria and parasites in the discharge from the wastewater treatment plant. A resident of Portage la Prairie, downstream from Brandon, was deeply concerned over this issue:

> I gave [petitions] to NDP candidates. Hah! Liberal candidates. I wanted them to take on some issues like water testing. ... They've got to say we are concerned about rural Manitoba. We are concerned about women and pregnancy, healthy kids. We are concerned about, after the fiasco in Brandon – no Clean Environment Commission hearings (Stan, August 11, 1999).

Many of the health-related data were also coded to forms of learning discussed earlier. For example, the class of data pertaining to health effects of wastewater discharge intersected with the class dealing with the uncertainty of waste treatment technology (discussed at page 95). Generally, interview participants who expressed strong concerns over potential health

effects were limited to those who also learned of the uncertainty of waste treatment technology.

5.2.2 Communicative learning

The analytic framework used in this section adopted communicative learning as the primary, etic category. Within the primary category, four secondary, etic categories were divided into tertiary emic categories (Table 5.2), and the tertiary categories were further subdivided into quaternary classes, discussed below. The parameters for the primary category were provided by transformative theory: communicative learning helps people negotiate their own meanings, intentions and values, rather than simply accepting those of others. As in the previous section, development of the secondary categories was guided by the empirical evidence reviewed in Section 2.4.3, and development of the tertiary and quaternary categories followed the approach and methods described in Section 3.5.1.

Table 5.2: Forms of Communicative Learning Acquired Through Involvement in EA

PRIMARY (ETIC) CATEGORY	SECONDARY (ETIC) CATEGORIES	TERTIARY (EMIC) CATEGORIES
communicative learning	insight into one's own interests	personal, family fears community fears personal contributions policy objectives
	insight into the interests of others	positions of the parties intentions of the parties public concerns shared concerns
	communication strategies and methods	personal contacts media relations cooperation
	social mobilization	persistence complementary forms adequate resources

5.2.2.1 Insight into one's own interests

5.2.2.1.1 Personal, family fears

A significant form of communicative learning in the Maple Leaf EA was insight into one's own interests. Following Fisher and Ury (1991), interests encompassed desires, fears, concerns, intentions, and needs. A subcategory of insight into one's own interests captured personal fears expressed by several interview participants. One participant, a community activist and a critic of the project, was concerned about how his involvement in the case affected his family relationships:

> The whole reason I can handle this much abuse from the politicians or the city council ... I just don't let it get to me. But, you see, the wife and kids, eh, you just ignore them too much, it does affect me (Stan, August 11, 1999).

Another participant, an ex-farmer and a supporter of the project, raised concerns over the state of the environment being left for his children and grandchildren:

> I learned a lot from the other side as well as to why they were concerned and I have got children, my goodness, I certainly don't want to, I don't want them having to put up with an environment that I had something to do with that went astray (Wes, January 31, 2000).

5.2.2.1.2 Community fears

A related subcategory of insight into one's own interests dealt with fears pertaining to the community. Many of these data related to potential changes to the community and were also encompassed within the subcategory containing what people learned about potential social impacts of the project (page 104). Other data coded here dealt with how people's fears had been allayed. For example, through attending the public information meetings, a provincial official became more comfortable with the project:

> Some of it was repetitious but certainly there was things that you picked up on, you know the commitment by the company, the commitment by the city I think very strongly passed on at those particular meetings. And it made, I guess us as the enforcement agency, I felt comfortable that the commitment was going to be there from the city and from the company and that sort of thing (Oliver, November 18, 1999).

5.2.2.1.3 Personal contributions

A further subcategory caught insights pertaining to personal contributions to the community. One participant, a Brandon businessperson and a project critic, gained insight into a role that she has frequently played in civic organizations to which she has belonged:

> I am learning where I fit in, it is crystallizing what my role is in these kinds of things and if I age to be an 80 year old woman, I will get better at this. I will get better at knowing how I can fit and how I can enable younger generations how to understand about preserving our planet, improving degradation of our planet, things like that. My sons, my grandchildren, when I have them. I will become better at articulating without being divisive, trying to bring together (Sarah, January 31, 2000).

Another participant, who was also a businessperson but who was a supporter of the project, developed his understanding of the contributions stemming from conducting business in a fair and honest manner:

> Fair business practice dictates that you be a group all the way through, that you keep people informed and everybody will end up with something in the end ... lets give everybody a piece of the action. I take a certain amount of satisfaction out of knowing that we did, my wife and myself, have been responsible for helping a number of people over time attain their goals. Some beyond their imaginations. It has been nice (Woody, February 22, 2000).

5.2.2.1.4 Policy objectives

Finally, for one activist, involvement in Maple Leaf and the subsequent Schneider case contributed to elucidation of his organization's policy agenda:

> We want there to be a moratorium on hog production. We want the province to withhold signing a memorandum of understanding with Smithfield, Schneider until a full hearing has been held. We want single desk marketing reinstated, although I would tend to put it somewhat differently. I would rather think of it as having transparent pricing, which at the present time single desk marketing, I suppose, is the most immediate way of ensuring that hog pricing is transparent, as opposed to secretized. We want to see a fully scoped Clean Environment Commission hearing, so on and so on (Louis, January 22, 2000).

5.2.2.2 Insight into the interests of others

Another secondary, communicative category was insight into the interests of others. Many of the data coded here were also coded to categories described earlier. The interests of others

included intentions, needs, wants, fears and concerns and some of the interests pertained to biophysical issues, while others pertained to socioeconomic issues.

5.2.2.2.1 Positions of the parties

A subcategory of insight into the interests of others, found in both the Maple Leaf and Salmon Aquaculture Review cases, related to the importance of transcending entrenched positions for learning to occur by EA participants. The following passage from a SAR participant articulates this theme well:

> There was definitely a sense that people held very different points of view and that they were not being influenced by each other's statements, that their points of view were not altering based on other people's points of view. There are processes that I have been involved with that over time start to develop a sense of people finding common ground and coming to common solutions. There wasn't as much of that in this process as I have experienced in other settings. ... All of us need to be able to take in information and have it inform our points of view and not just have environmental assessment be a place where we express our points of view that we already have. Because if that is all that is going to happen, then we don't really need to have an assessment. We can just have a hearing and everybody slog it out at a hearing with their already crafted points of view. If we want an assessment, we have to find some way where all of us are going to be taking in information, digesting it, and testing our point of view against that information (Billie, September 29, 1999).

5.2.2.2.2 Intentions of the parties

A further subcategory of insight into the interests of others contained what people learned about the intentions of the major parties to the EAs. Many of these data were cross-coded to other forms of learning and are discussed elsewhere. Therefore, the data are not presented in detail in this section, although a summary is given in Table 5.3.

5.2.2.2.3 Public concerns

Yet another subcategory of insight into the interests of others comprised what various participants (including the proponents, the provincial environment ministry, and major intervenors) learned about public concerns over the project. Again, many of the data were

cross-coded to other forms of learning and have been discussed earlier, largely in the section on potential risks and impacts (Section 5.2.1.4, page 102).

Table 5.3: Insights of Selected Maple Leaf Participants Regarding Others' Intentions

THE LEARNER	INSIGHTS GAINED
Manitoba Environment officials	commitments made by the proponents Maple Leaf's plans to enter the emerging Asian pork market
City of Brandon officials	Maple Leaf's long-term plans for the Brandon plant WCAC's plans to stop the project through court actions City administration's plans ("fantasy") for generating revenue from the new wastewater treatment facility
WCAC members	NDP agricultural policies Maple Leaf's desire to off-load environmental and economic risks onto farmers and the City of Brandon
Academic participants	the Manitoba government's approach to EA Maple Leaf's approach to wastewater treatment and monitoring
Proponent consultants	Maple Leaf's desire to control media and public relations
Selected nonparticipants	Maple Leaf's goal of mining profit Maple Leaf's goal to comply with environmental regulations

A subtheme of public concerns not discussed previously, however, dealt with the level of public support for the project. While a proponent representative thought the project had considerable public support, an intervenor representative suggested that most citizens were concerned at some level. Compare the following passages from the interviews:

> The most important thing was learning fairly early on that the vast majority of the public was, at worst, neutral, more likely mildly concerned to very enthusiastic, which is important for us to know. ... We also had one other indicator of public support. We had a municipal election in the middle of all this with a number of candidates and the Mayor made it a central plank of his campaign, Maple Leaf. And the Mayor got 79% of the vote against two candidates so he sees it as an absolute vindication of his position on Maple Leaf and I don't know how you can argue that (Duke, November 17, 1999).
>
> If you were to carry out a survey in Brandon and did it in such a way as to get a large return and say you know it was part of an election taking place in Brandon of considerable importance and you just happen to stick on the ballot a couple of questions about Maple Leaf or hog production, you would find that a lot of people had concerns of one sort or another. Maybe it is about traffic, maybe it is about

> health, maybe it is about crime, maybe it is about air quality. It could be about anything. You would find out that a lot of people are concerned, with only very few who actually get up and do something about it. I am interested in the fact that over the course of the last year and half that I have been involved in this, in all that time, I have only received, and I knock on wood, one expression of crankiness. One crank call I received way back when. Even before I had really become involved in this thing and, on the other hand, since then I have received dozens of phone calls from people asking questions, giving me information and expressions of concerns (Louis, August 10, 1999).

5.2.2.2.4 Shared concerns

Yet a further subcategory of insight into the interests of others reflected the notion that several participants learned of concerns that were shared by other individuals or organizations. A notable example is how Westman Community Action Coalition, towards the end of the Maple Leaf EA, increasingly worked in concert with other organizations:

> We are working exclusively with other groups now. We have decided to do that in the past month, so we have done that with the National Farmers Union, Prairie Alliance for the Future, Winnipeg Human Society, CHOICES, we are all getting together. There was a very successful press conference on the 28th of January, the Friday prior to the Schneider announcement, at the Legislature so lots of people were at that and that is what we are going to do province wide now because there is a groundswell of interest I guess (Ella, February 21, 2000).

Another example is how the City of Brandon initiated a group of government and industry stakeholders with interests in the health of the Assiniboine River:

> We have established a joint user, river users' group. Everybody who puts anything in the Assiniboine River of any substance is working together, looking at improvements. It involves two cities, two provincial departments, and a whole bunch of industries. Never talked before and we are all going to spend money together on this. This has never been done anywhere. Partially out of the understanding we have all achieved through the Maple Leaf process (Sidney, November 17, 1999).

5.2.2.3 Communication strategies and methods

5.2.2.3.1 Personal contacts

The third category of communicative learning was communication strategies and methods, which contained a small but eclectic collection of data segments. A prominent subcategory

was personal contacts, which emphasized the development of personal relationships. Regarding the WCAC citizens hearing, a member of the academic community commented, "For me it was useful to establish contact with some really interesting people and we are sort of corresponding on common issues." With respect to the City of Brandon public information meetings, a provincial environment official said, "The public had the opportunity to put faces to the proponents. They knew who to direct questions to." Another environment official talked about developing relationships with the proponents:

> I think that one of the advantages is that we have got to know the proponent very well, we have got to know the city administration very well. We knew them before but I think we got to know them better. You know, when you are making presentations at these things with these people, you obviously have a social atmosphere. In some cases too you have a coffee and talk about issues, you talk about different things, there is a time for a break, so you get to know how they feel and where they are at and I think it makes our job easier (Oliver, November 18, 1999).

5.2.2.3.2 Media relations

Another subcategory of communication strategies and methods was media relations. A member of the media had this to say about Maple Leaf:

> They have learned that if they are open with me, they will get reasonably fair coverage, which half the time they will hate and half the time they will like. And they sort of came to terms with that but I had to push them a lot. Their PR strategy was to say nothing for the first year, never answered phone calls, never, ever, ever. And some point I had to have a little tirade with their PR person in Toronto and say, this is the biggest thing to hit Brandon, articles are in the paper every day about it and if you want all of those articles to focus on what your critics have to say, you could just keep on with your PR strategy and if you want your perspective in there, you'd better start talking. So, we worked that one out. The plant manager is really easy to get along with and I have a good relationship with him but, again, it is sort of he knows he has to talk to me and if something good happens, I will report it and if something bad happens I'll report it and there is nothing he can do to stop me (Lena, February 1, 2000).

An interesting subtheme of media relations dealt with the press' search for balance in reporting a news story. A representative of Maple Leaf's chief consultant complained that this quest for balance resulted in excessive and undeserved coverage of the views of the project critics:

> I learned one thing that, again, I don't know if that is what I learned, but I wanted to get this out to you. But, I personally feel that the media does a lot of disservice to the environmental movement. I think they think they are doing the right thing. But they give all the attention to the squeaky wheel. ... It distorts the negative side of the argument (Wynton, January 21, 2000).

Indeed, the amount of press coverage given to project critics in the Maple Leaf case could be explained by the media's search for balance in reporting a story. However, the reporter's comments captioned above suggest that it could also be explained by Maple Leaf's initial unwillingness to speak to the media.

5.2.2.3.3 Cooperation

The final subcategory of communication strategies and methods was cooperation, which reflected a notion from two City of Brandon officials that after a strained start they ultimately developed a cooperative relationship with the provincial environment ministry. One of the officials put it this way:

> We had to really learn what they are all about just as they had to learn what we are about ... I mean, we had to be willing to work together is what it really came down to. I think in the end, yeah, I was happy because we were working together. We were truly using each other as a resource to a common goal (Sidney, November 17, 1999).

5.2.2.4 Social mobilization

5.2.2.4.1 Persistence

The final, secondary category of communicative learning was social mobilization, drawn from interviews with project critics. A notable subcategory was persistence, comprising ideas expressed by one interview participant on the importance of perseverance to activism and the potential for activism in a socially conservative community:

> I can't say that there are any outstanding discoveries or lessons. Just the importance of persistence. I haven't really learned anything other than just sorts of trivial kinds of facts and information. I am just doing what I like to do. Maybe the lesson at the end of the day is that if citizens, if they are persistent enough, can cause a plan of action to be derailed or diverted or can secure due process or something like that. ...

> Maybe something that I have learned is one can raise questions and pursue an activist strategy and oppose and be critical of something in a so-called conservative community and be supported for that. That one can come to town as I have and raise heck and get involved and be activist and that the world doesn't fall apart, the sky doesn't cave in. ... One can come to a community and raise questions and not be crucified for it (Louis, February 22, 2000).

5.2.2.4.2 Complementary forms

Another subcategory of social mobilization captured the theme that activism requires complementary forms of critical, civic involvement. One interview participant expressed it as need for a dialectical or mediating influence that synthesizes antithetical positions:

> I would say I am not an activist. I think the activist's role is to create the knowledge and the word and the opposition in order to keep the awareness level going there. I am more of an enabler trying to push through and enable progress in the proper direction after the activist does his and her role. That is sort of where I see myself in these kinds of social justice or environmental issues (Sarah, January 31, 2000).

Another interview participant expressed it in terms of advocating change from within the system, rather than through the use of activist strategies. This individual, in referring to the activist quoted above, said:

> [He] actually believes that this kind of activity makes a difference and in the end analysis, he may be right. I see my way of working and his way of working as complementary, you know. They're really not two orbs, they're just us finding where we're effective and where we feel like we are making a difference. So, I guess that's what I've learned (Oscar, November 18, 1999).

5.2.2.4.3 Adequate resources

A further subcategory of social mobilization reflected a need expressed by ENGO officials for greater human and financial resources so their organizations could participate more effectively in environmental assessments. Such a need was identified in the Maple Leaf case and was reiterated in the Salmon Aquaculture Review. Two SAR interview participants, when asked what lessons they derived from the case, said:

> As far as myself personally, I think I would have tried to get some funding for at least one or two more groups, encourage that kind of effort to occur. We were really under staffed as far as the environmental community, which wouldn't have been the case

> had it been a terrestrial assessment. We tend to have far more bodies quite quickly to mobilize on issues that are of a terrestrial nature than we do with, for instance, even from the stand point of Greenpeace, they don't have a fisheries campaigner any longer. They have very little work actually happening with a marine focus. So, right off the bat you are losing a very strong player (Sonny, September 29, 1999).
>
> For the NGO sector, I think, a lot of resources, monetary resources included, to be able to put up an equal front against a large industry or large company and never underestimate that. To be part of something and not have enough resources, you can be assumed to be part of the process and part of the outcome. And, you have to make a very clear determination whether you have enough resources to take on the issue and be effective. Environmental groups in the case were very effective despite their lack of resources but I don't think they were effective enough (Coleman, October 1, 1999).

5.2.3 Changes in meaning schemes

The analytic framework used in this subsection adopted a primary, etic category drawn from transformative theory: changes in meaning schemes. Within the primary category, there were five secondary, etic categories: (1) new concepts; (2) more integrated understanding of social and natural systems; (3) more positive attitudes and feelings toward the community; (4) more cynical attitudes and resentment toward state and business interests; and, (5) increased feelings of social cohesion in civil society. The secondary categories were subdivided into tertiary, emic groupings, all of which were fractured into further grounded topics or themes. The parameters for the primary category were found in the transformative learning literature: meaning schemes are constituted by beliefs, feelings, attitudes, and value judgements (Section 2.2.2). As in previous sections, the secondary categories were informed by indirect empirical evidence (Section 2.4.3), while the emic classes were constructed following the methods described in Section 3.5.1.

Many of the data concerning meaning schemes were also coded to forms of learning described earlier. The first subcategory of meaning schemes was new concepts, which shared a large intersection with instrumental learning. Examples of emic topics or themes within this intersection included waste treatment technology, dynamics within local and regional labour markets, nutrient loading in the Assiniboine River, and manure management and hog densities. New concepts also shared a modest intersection with communicative

learning, including emic topics such as improved media relations skills, the importance of persistence in social activism, and the need among ENGOs for greater human and financial resources.

Another secondary category of meaning schemes was more integrated understanding of social and natural systems. This class intersected with several forms of instrumental learning and contained evidence that EA participants learned of linkages between the Maple Leaf development and globalization, and between the development and decline in rural Manitoba society. The government participants also learned of the need for greater holism in EA, including strategic assessments and integration with regional planning.

The third subcategory of meaning schemes, more positive attitudes and feelings towards the community, was relatively small yet significant. It contained data from several project critics, as well as project supporters, such as the following statement from an interview participant with the economic development branch of the City of Brandon:

> Well, there are two things that I learned. ... And two was the reinforcement of my opinion that Brandon, residents of Brandon, taxpayers are a very, very down to earth and intelligent group of people. I have the utmost confidence in this community to make good decisions (Woody, February 22, 2000).

The next subcategory, more cynical attitudes and resentment towards state and business interests, intersected with both instrumental and communicative learning. Emic topics or themes within the intersections included control of the EA process by industry, dissatisfaction with public involvement systems, mistrust of government, alienation from basic democratic values, and lack of respect for elected officials. The following comment from a Brandon area farmer reflects the resentment towards government felt by many project critics:

> The Premier of Manitoba went to Toronto to announce this. It wasn't announced here. It was a very top down kind of thing and I guess we had been through, as a province, we had been through a number of situations where the provincial government had pushed things like the sale of MTS. These were in the face of massive public disapproval. They just go ahead and do these things anyway. And this was the same kind of thing. The announcement was Winnipeg-Toronto centric

> and the city appeared to just be lap dogs eagerly waiting for the bone to drop (Art, November 17, 1999).

The final subcategory of meaning schemes, increased feelings of social cohesion in civil society, contained data that were also found in several classes of communicative learning. A notable emic theme of relevance here was that social activism requires complementary forms of critical, civic involvement. Another related to how various EA participants learned of concerns over the project that were shared by other individuals and organizations.

5.2.4 Applied learning

The framework used in this subsection adopted a primary, etic category informed by the transformative, self reflection process (Figure 2.2, page 13): applied learning. The primary category was divided into three secondary, etic categories: (1) building competence and self-confidence in new patterns of behaviour; (2) planning a course of action; and, (3) gaining knowledge and skills for implementing one's plan. Applied learning was defined as a lesson acquired through involvement in the Maple Leaf EA that the learner applied subsequently, either in the Maple Leaf case or in another context. The secondary categories were based on phases six through eight in the self reflection process. Some of the data relevant here were cross-coded to forms of learning discussed earlier.

Linkages with the secondary categories were identified but since the data on applied learning were sparse, these linkages must be viewed with tentativeness. One of the stronger connections was found in the experiences of a community activist and project critic who used aspects of what he learned about waste treatment to design and implement a plan to monitor the Maple Leaf and wastewater treatment plants:

> ... monitoring Maple Leaf's and the City of Brandon's compliance with their licence, with their respective licences, which starts off monitoring their reports, receiving their monthly reports, monitoring all the reporting that they are required to do according to the Environment Act. And going through the data, reading it, asking questions, becoming completely fluent in the mathematical and reporting parameters that are associated with their licence so that I can see what they are doing and what they are reporting and what is happening, what is not happening and be able to ask questions and being on top of it (Louis, February 22, 2000).

A further connection was seen in the comments of another project critic, who indicated that she applied personal insights gained from the Maple Leaf case[21] in her involvement as a board member of an unrelated ENGO. She said that her involvement in Maple Leaf "is confirming my beliefs, helping me with this other project, how I fit, what my role is. I am learning my own position" (Sarah, January 31, 2000).

Additional evidence, at least with respect to planning a course of action and gaining knowledge and skills for implementing the plan, was provided by an official with the City of Brandon, who intended to apply what he had learned about public information meetings to future planning endeavours:[22] "I think the approach we took was right. ... You want to keep the people involved. ... I see that as kind of an ongoing process and not just for this particular project but for a number of other projects" (Sidney, November 17, 1999).

Yet further evidence, again pertaining primarily to planning a course of action and gaining knowledge for implementing the plan, was found in the experiences of two city officials and dealt with them applying lessons from the Maple Leaf case to a subsequent environmental issue. As already indicated in the subsection of communicative learning dealing with insight into the interests of others (Section 5.2.2.2, page 110), Brandon officials used aspects of what they learned about the assimilative capacity of the Assiniboine River to initiate a multi-stakeholder group with interests in the river. As one official put it:

> This is our own initiative and because when we did the Maple Leaf plant we were required to look from Brandon to Portage la Prairie, we said if we are already looking at water quality in that area, it would make sense to get those users and that group together to say, hey, its not just Brandon involved in this. It is anyone else who is depositing into the river that need to get together and work together as a group and as a result we can develop some synergy on issues we are going to do or identify here is a good spot for the next development that comes in wanting to use the river or land

[21] The personal insights referred to here pertained to this individual's "natural" or preferred role as an educator or mediator. Many of these data were cross-coded to forms of learning discussed earlier and were highlighted in the discussion of communicative learning, specifically Section 5.2.2.1, page 109.

[22] Similar data respecting beliefs about the effectiveness of public involvement meetings, obtained from another city official, were reported earlier, in the section on instrumental learning and legal administrative, and political procedures (page 96).

> use planning or maybe even the types of treatment we have here can complement one another. We can handle sludge and they can handle the liquid end. Those are the types of things that we want to try and draw out of this (Sidney, November 17, 1999).

5.3 Contextual variables

Since transformative theory emphasizes the social context in which learning occurs, this section examines associations between contextual variables and what individuals learned through their involvement in the Maple Leaf EA. The first subsection focuses on the degree to which participants supported the Maple Leaf development, while the second investigates learning venues. The data presented were collected through interviewing EA participants, reviewing videotapes of the City of Brandon's public information meetings, and observing public events sponsored by WCAC and Maple Leaf.

5.3.1 Level of support for the project

The interview participants were sorted into four ordinal classes based on level of support for the project: highly supportive, moderately supportive, moderately critical, and highly critical. A contingency table showing frequencies and proportions (over row totals) was then constructed against the primary forms of learning experienced (Table 5.4).

Table 5.4: Interview Participants Classed by Degree of Support for the Maple Leaf Project and Primary Form of Learning Experienced

LEVEL OF SUPPORT	PRIMARY FORMS OF LEARNING						TOTAL	
	Instrumental		Communicative		Both			
	Frequency	Proportion	Frequency	Proportion	Frequency	Proportion	Frequency	Proportion
highly supportive	1	.20	0	.00	4	.80	5	1.00
moderately supportive	5	.56	0	.00	4	.44	9	1.00
moderately critical	2	.67	0	.00	1	.33	3	1.00
highly critical	2	.18	0	.00	9	.82	11	1.00

A notable feature of the table was that none of the participants reported experiencing communicative learning without also experiencing instrumental learning. This is understandable given the instrumental focus of the Maple Leaf EA (and most EAs).

Whatever communicative learning occurred was likely linked to instrumental discussions of matters such as engineering and technical details of waste treatment, potential risks and impacts, and legal and political maneuverings.

A further distinctive feature of Table 5.4 was that a greater proportion (13/16 or .81) of highly critical or supportive participants reported experiencing communicative learning than did moderately critical or supportive participants (5/12 or .42). A test for independence, following Freund and Simon (1992) and McClave and Dietrich (1989), between whether participants were highly critical or supportive and whether they experienced communicative learning revealed evidence of a relationship at the .05 level of significance ($X^2 = 4.680 > \chi^2_{.05} = 3.841$, 1 df). Further analysis using contingency coefficients confirmed a weak correlation ($C = .378$) between the variables.[23] This association could be explained by highly critical or supportive participants being more deeply involved in the case, providing them with increased opportunities for communicative learning. Additionally, highly critical or supportive participants were often leaders in their communities or organizations and sought improved communicative competence in matters such as insight into the interests of others.

Examining instrumental learning in more depth, Table 5.5 presents the proportions of interview participants in each level of support who experienced the secondary forms of instrumental learning. A striking characteristic was that only two participants reported that they did not learn anything about potential risks and impacts. This subject was obviously a central focus for the participants, and is understandable given that the overriding purpose of the EA was consideration of potential impacts and feasible mitigation measures. Continuing the investigation raised in the preceding paragraph revealed a larger proportion (8/16 or .50) of highly supportive or critical participants learned about legal, administrative, and political

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[23] The contingency coefficient analysis followed Siegel's (1956) framework and formula:

$$C = \sqrt{\chi^2 / N + \chi^2}$$

where $\chi^2 = \sum \sum (O_{ij} - E_{ij})^2 / E_{ij}$

O_{ij} = the observed number of cases in the i^{th} row of j^{th} column

E_{ij} = the number of cases expected to be categorized in the i^{th} row of the j^{th} column

$\sum \sum$ directs one to sum over all the cells

procedures than did the moderate participants (4/12 or .33). However, a test for independence did not reveal evidence of a relationship even at the .25 level of significance ($X^2 = .778 < \chi^2_{.25} = 1.323$, 1 df). Yet another notable aspect of Table 5.5 is that proportionally more critics (5/14 or .36) than supporters (2/14 or .14) reported learning about social and economic matters. In this case, a test for independence was not conducted because the sample size (n = 28) was insufficient to provide $E(n_{ij}) \geq 5$ for two of the cells in the χ^2 analysis.

Table 5.5: Proportions of Interview Participants in Each Level of Support who Experienced Secondary Forms of Instrumental Learning

LEVEL OF SUPPORT	SECONDARY FORMS OF INSTRUMENTAL LEARNING			
	Scientific & technical	Legal, administrative & political	Social & economic	Potential risks & impacts
highly supportive (n = 5)	2/5 (.40)	3/5 (.60)	1/5 (.14)	5/5 (1.00)
moderately supportive (n = 9)	4/9 (.44)	3/9 (.33)	1/9 (.11)	8/9 (.89)
moderately critical (n = 3)	1/3 (.33)	1/3 (.33)	1/3 (.33)	3/3 (1.00)
highly critical (n = 11)	4/11 (.36)	5/11 (.45)	4/11 (.36)	10/11 (.91)

Investigating communicative learning in greater detail, Table 5.6 gives the proportions of interview participants in each level of support who reported experiencing the secondary forms of communicative learning. It is noteworthy but not surprising that only participants who were highly critical learned about social mobilization since this category of learning was partly defined with reference to activism, typically associated with project critics. It is also noteworthy that a larger proportion (12/16 or .75) of highly supportive or critical participants gained insights into the interests of others than did the moderate participants (4/12 or .33). A test for independence revealed evidence of a relationship with $\alpha = .05$ ($X^2 = 4.861 > \chi^2_{.05} = 3.841$, 1 df), and contingency coefficient analysis confirmed a weak correlation ($C = .385$). As intimated earlier, this association could be explained by highly critical or supportive participants also being highly motivated to seek allies and muster support for their causes. This would invariably involve learning about the interests (desires, fears, concerns, intentions, and needs) of their prospective supporters. The association could be further explained by highly supportive participants being proponents' representatives who engaged in consultations to seek out the concerns of interested publics.

Table 5.6: Proportions of Interview Participants in Each Level of Support who Experienced Secondary Forms of Communicative Learning

LEVEL OF SUPPORT	SECONDARY FORMS OF INSTRUMENTAL LEARNING			
	Insight into one's own interests	Insight into the interests of others	Communications strategies & methods	Social mobilization
highly supportive (n = 5)	2/5 (.40)	5/5 (1.00)	3/5 (.60)	0/5 (0)
moderately supportive (n = 9)	3/9 (.33)	3/9 (.33)	2/9 (.22)	0/5 (0)
moderately critical (n = 3)	1/3 (.33)	1/3 (.33)	0/3 (0)	0/5 (0)
highly critical (n = 11)	6/11 (.55)	7/11 (.64)	3/11 (.27)	4/11 (.36)

5.3.2 Learning venues

Given transformative theory's emphasis on social context and the attention that learning venues have received in the literature (e.g., Alexander 1999), this subsection looks at associations between venues and forms of learning. Venues were identified in the data and coded with the framework presented in Table 5.7. Learning experiences were then cross-tabulated by primary learning venue and primary form of learning (Table 5.8). Similar proportions of communicative and instrumental learning were found across the primary venues. As well, higher incidence of instrumental learning than communicative learning was found in both venues. Chi-square tests, however, did not reveal evidence of a relationship even at the .25 level of significance ($X^2 = .312 < \chi^2_{.25} = 1.323$, 1 df).

Table 5.7: Categories of Learning Venues in the Maple Leaf EAs

PRIMARY (ETIC) CATEGORIES	SECONDARY (EMIC) CATEGORIES
specific education events	Citizens for Responsible Growth information meetings
	City of Brandon public information meetings
	Westman Community Action Coalition citizens' hearings
involvement in civic activities	City of Brandon politics and administration
	community organizing
	monitoring the Maple Leaf plants
	observing as a nonparticipant
	overall involvement in the Maple Leaf EA
	Schneider opposition
	technical advisory committee

Table 5.8: Learning Experiences in the Maple Leaf EAs Classed by Primary Venue and Form

PRIMARY LEARNING VENUES	PRIMARY FORMS OF LEARNING				TOTAL	
	Instrumental		Communicative			
	Frequency	Proportion	Frequency	Proportion	Frequency	Proportion
specific education events	31	.58	22	.42	53	1.00
involvement in civic activities	93	.63	55	.37	148	1.00

Learning experiences were further cross-tabulated by secondary learning venue and primary form of learning (Table 5.9). There was a higher incidence of instrumental learning than communicative learning in all but two of the secondary venues. It was also noteworthy that the proportions of communicative and instrumental learning were very similar across venues for which several data were available (i.e., where $x \geq 8$). This was true even for venues, such as the City of Brandon public information meetings and the Westman Community Action Coalition citizens hearings, that had drastically different agendas regarding the development. The exception was the secondary venue of observing as a nonparticipant ($x = 22$). For this venue, the proportions of instrumental and communicative learning were considerably different than for the other secondary venues with $x \geq 8$. Observing as a nonparticipant had a much higher proportion of instrumental learning (.91). This is easily understood considering the nature of the venue, which by definition lacked opportunities for communicative dialogue and engagement with fellow citizens in the community.

Table 5.9: Learning Experiences in the Maple Leaf EAs Classed by Secondary Venues and Primary Forms

SECONDARY LEARNING VENUES	PRIMARY FORMS OF LEARNING				TOTAL	
	Instrumental		Communicative			
	Frequency	Proportion	Frequency	Proportion	Frequency	Proportion
Citizens for Responsible Growth	2	1.00	0	.00	2	1.00
City of Brandon meetings	20	.56	16	.44	36	1.00
Westman Action Coalition hearings	9	.60	6	.40	15	1.00
City of Brandon politics	0	.00	3	1.00	3	1.00
community organizing	0	.00	3	1.00	3	1.00
monitoring the Maple Leaf plants	4	1.00	0	.00	4	1.00
observing as a nonparticipant	20	.91	2	.09	22	1.00
overall involvement in the EAs	63	.59	44	.41	107	1.00
Schneider opposition	5	.63	3	.37	8	1.00
technical advisory committee	1	1.00	0	.00	1	1.00

5.4 Constraints on learning through involvement

The foregoing discussion of forms of learning and related contextual variables presupposed participation in EA, and invited an investigation of constraints on involvement, and hence learning through involvement.[24] This section centres on the Maple Leaf case but includes a comparative analysis of selected variables in the Green Commuting Project. Interview participants were asked specifically why some people refrain from becoming involved in EA processes. The interviews focused on people who were actively involved in the case studies, but the interviews also included a small selection of "non-participants". These were residents of Brandon and the surrounding area who were interested in the Maple Leaf development but were not involved in the EAs. In addition, although this section relies primarily on data from the intensive phase of the research, it also draws on data gathered in interviews with government and ENGO officials during the extensive phase.

5.4.1 Structural constraints

The analytic framework used in this section adopted a primary, etic category, namely, structural constraints, within which were four secondary and 16 tertiary, emic categories (Table 5.10). Structural constraints comprised barriers related to societal structures, including institutional settings, economic arrangements, and legislative frameworks (i.e., EA processes). Development of the emic classes followed the approach and methods described in Section 3.5.1.

5.4.1.1 Involuntary complexity

A recurring theme was that people were constrained from participating in the civic life of the community, and hence from learning through their involvement, because of the complexities and time pressures of modern living. This theme was categorized as a structural constraint and labeled as involuntary complexity, adopting notions from the voluntary simplicity movement, which advocates a simpler, less consumptive lifestyle (Elgin 1981).

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[24] Parts of this section of Chapter 5 were excerpted from two previously published articles, namely Diduck et al. (2000) and Diduck and Sinclair (2001).

Table 5.10: Structural Constraints on Learning through Involvement in EA

PRIMARY (ETIC) CATEGORY	SECONDARY (ETIC) CATEGORIES	TERTIARY (EMIC) CATEGORIES
structural constraints	involuntary complexity	consumerism work and family pressures social and civic commitments consultation fatigue
	process deficiencies	inadequate notice lack of participant funding lack of opportunity inaccessible information foregone conclusion unresponsive
	alienating dominant discourses	extremism nay sayers technical focus proponent control of public involvement
	lack of institutional capacity	conflicting institutional arrangements lack of institutional flexibility

5.4.1.1.1 Consumerism

An important subcategory of involuntary complexity was consumerism, which related to a suggestion from one interview participant that nonparticipation in the Maple Leaf EA was exacerbated by the demands of consumer lifestyles:

> People in Brandon are no different than elsewhere. They believe that the good life comes to them through acquisition and in that belief have entered into debts, work fulltime, or fulltime and a half, or double jobs. Now, both parents in families are working. They think that to prepare their children for a good life those children also need to access as many earning opportunities and growth opportunities as possible, the more the better, that's the bottom line. ... The result of this is a very fast paced, very superficial, extremely stressful and competing society. Everybody is racing, racing, racing, racing, often mindlessly, reflexively, totally without reflection, totally without connection to anything that they even recognize as a value. They just do it because they don't see alternatives. So we have, in general, a stressed out exhausted populace that feels crushed between the demands of their employers, the demands of their families, complex technological systems that they scarcely understand ... and we say we value democracy, but we have created an economy and a configuration of power within society that scarcely permits it. ... I think consumerism as a way of life diminishes the capacity of its citizens to participate meaningfully in democratic processes... but people are choosing consumerism over environmental health, over meaningful experiences in communities, and over democratic decisions. That appears

> to be their choice. They're voting with their dollars, with their time, with their attention. That appears to be where we're going (Oscar, November 18, 1999).

There was not consensus on the influence of consumerism though, as another participant warned against over emphasizing its effects:

> I don't know of any societies in the world where everybody, like a large proportion, is somehow involved in the community, interacting culturally, socially, spiritually. Here in our society, I suppose the glib reason for why people don't participate is that they are too busy consuming and maybe that is true to an extent. But in other societies where consumption rates are low, I am sure you'd find, like I've lived in [a developing nation] for three years in lower income settings and there are people just worried about their lives, living their lives (Louis, February 22, 2000).

5.4.1.1.2 Work and family pressures

Consistent with the above caption, another subcategory of involuntary complexity was work and family pressures, expressed in the following quotations:

> It's Manitoba, right? You've got four months of nice weather, or three months. Well, what do you think is going on right now? All this stuff is coming down in the middle of summer. Farmers are busy. There is a lot of flood damage everywhere. There is, you know, drought in other places. The prices, there are guys that say I wish a hail would come through on their canola crops because they are just not going to make any money on anything, and that takes far more precedence (Stan, August 11, 1999).
>
> It's just a whirlwind. I don't watch TV from one week to the next. I don't have time. With kids running around all over the place doing different things, so you just, there's just not enough hours in the day to, other than for a very few dedicated people that are abundantly active (Thelonius, November 10, 1999).
>
> They are typical Canadians. They are busy with their lives, family, jobs, friends (George, June 16, 1999).
>
> I would have liked to have seen more citizens there but I mean people have busy lives and they are running their kids to hockey and Brownies and whatever, I mean, that is what people do with their lives (Ella, February 21, 2000).
>
> Maybe it's this generation with primarily two income earners, but it's just a faster pace of life than the previous generation (Thelonius, November 10, 1999).

5.4.1.1.3 Social and civic commitments

Similar to work and family pressures, another subcategory of involuntary complexity captured suggestions that social and civic commitments prevented people from taking part in the Maple Leaf environmental assessments.

> A lot of people spend a lot of time on volunteer activities on things that are interesting to them, curling or the local community services club or whatever. People tend not to have a whole lot of time to get involved in things of a political or social nature that are outside of their current activities (Louis, February 22, 2000).
>
> We [Westman Community Action Coalition] are just one group in the community that's sort of pummeling people for their time, attention and money. Don't you care about cancer? Don't you care about child abuse? Don't you care about women getting beat up by their husbands? Don't you care about? Of course you care about it all. Don't you care about the hog plant? Yeah, you care about the hog plant (Oscar, November 18, 1999).
>
> [Referring to the lack of attendance at a recent public involvement event], the proximate cause was that on Saturday evening, Lorne Elliott was at the Westman Auditorium. And given a choice, more people would enjoy the humour and good spirits and happy look at the world that Lorne Elliott offered, than the misery and gloom that we were promising – a little bit exaggerated (Benny, November 4, 1999).

5.4.1.1.4 Consultation fatigue

Yet another subcategory was consultation fatigue, which collected suggestions that the public was being over-consulted, although this was more of a concern for government officials than for citizens.

> We also hear that some people and groups are suffering from consultation fatigue (Ira, June 17, 1999).
>
> There could be a little bit of apathy but I have a concern in urban environments about over participation. We are losing the benefits of participation (Lenny, June 18, 1999).
>
> People are being consulted to death, for example, flying out of a northern Manitoba First Nation after consulting with the local community and being the second of three straight such fly-in consultations. We are wearing people down (Chick, July 16, 1999).

The notion of involuntary complexity as a constraint to participation, and hence to learning through involvement, was supported by data from the Green Commuting Project. A staff member of the project indicated that a major hurdle to public participation was the common perception that alternatives to commuting by single-occupancy vehicle were time consuming

and inconvenient. A similar hurdle was the view among gatekeepers (typically in middle management) in organizations critical to the success of the Green Commuting Project (such as government departments, crown corporations, and large private firms) that they did not have the time to devote to something new:

> These people are managers. Their job is to manage, not to do outreach. They do not see it as their problem - one woman said to me that, "my problem is when people are at work not how they get to work". She did not want another problem to deal with - she was managing her time. Managing time is the first barrier with these people (Gerry, May 17, 2000).

5.4.1.2 Process deficiencies

Another recurring theme, categorized as a structural constraint, was that involvement and learning in the Maple Leaf case were impinged by deficiencies in the EA process. Inadequate notice was a shortcoming, with one project critic stating that "time is also a problem. Even 60 days is not enough to get people really engaged" (Holly, August 19, 1999). Lack of participant funding was also a deficiency, with a government official stating, "Time and costs are the two main reasons they do not participate. The lack of participant assistance is a problem" (Ornette, May 4, 1999). In addition, lack of opportunity was a problem:

> Well, I think people did participate to the extent that they were able to. There just weren't a lot of avenues. If you wanted to participate in this process, you had to be willing to do a lot of work to break through barriers that were being put up in front of you (Lena, February 1, 2000).

5.4.1.2.1 Inaccessible information

Another notable subcategory of process deficiencies was inaccessible information, recalling the results presented in Section 4.1.1. Comments were directed to both understandability and physical access:

> Manitoba Environment placed these little ads in the paper that said if you want to comment on proposal X324 regarding and then it would say gobbledygook, you know, then make a submissions by March 13 and I have enough of a background that I could figure out what the gobbledygook was but if I didn't ... I would have been able to see the words Maple Leaf but not necessarily understood what the hell it was you were supposed to comment on... The documents were not remotely

> understandable to someone without a technical background and I did okay ... but I know that even others would go in and read them and kind of miss the point because they were written by scientists for scientists essentially, and they would be like 600 pages or something and I know how to find executive summaries and ignore the rest but still it was not accessible style at all (Lena, February 1, 2000).
>
> Every time I would go down to the library and they wouldn't have them yet and it was a big rigmarole to get them. I felt I was practically backing the librarian against the wall saying, Manitoba Environment has guaranteed that they are here, they better be here, like find them will ya. So, I know that a lot of people went in and couldn't find them, either because they hadn't arrived yet or they had been filed somewhere and the librarians didn't know where they were (Lena, February 1, 2000).
>
> Access to information is also a pain. The libraries are only open certain hours and they don't have all the information – one has to dig (Diana, August 18, 1999).

5.4.1.2.2 Foregone conclusion

Still another important subcategory of process deficiencies was foregone conclusion, which captured the idea that participation in the Maple Leaf case, and hence learning through involvement, were fettered by a belief that providing input would not make a difference as the ultimate decision in the case was a foregone conclusion. The following comments reflect this general idea:

> I think that most of the community sees the Maple Leaf plant as a fait accompli, not something that their participation can really influence, whether they're in favour of it or not (Oscar, November 18, 1999).
>
> My view was that I think that things were already decided and participating isn't going to make a difference. So, I could go and blow off steam but if the end result is going to be the same no matter what I do, I think that is a waste of effort (Grover, January 31, 2000).
>
> What is the point? They are only going to do it this way anyway. Unfortunately, we have seen that happen too many times. So, I am getting a bit cynical (Ella, February 21, 2000).
>
> They are cynical. The public thinks that the decision is a forgone conclusion so why waste their time participating. What difference will I make? The record of decisions in Manitoba is so uniform how can people help but question (Diana, August 18, 1999).
>
> They were starting to build and once they started to build, you know you can go and yell and scream but there was a fair amount of very public political support for it in terms of the politicians. That was very obvious. You had the Mayor here with his direct line to the hog plant. That type of thing was sickening to a certain extent (Grover, January 31, 2000).

> When they announced it, it was pretty much a foregone conclusion, that is, they were not going to say no you can't have this thing, or no this thing can't be built here (Herbie, February 22, 2000).

5.4.1.2.3 Unresponsive

A subcategory of process deficiencies related to foregone conclusion was unresponsive to concerns. Here the idea was that people refrained from participating because they believed their input would not make a difference since they had failed to see their concerns addressed during the EA process:

> And then you comment and typically the comments didn't seem to have much impact on anything much. You know, people didn't necessarily get feedback. You know, they may point out that there were ten things they disagreed with and they would get a letter saying thank you and now we are licensing it. So, I thought that was a pretty pathetic process (Lena, February 1, 2000).

Although not all of the subcategories of process deficiencies were applicable to the Green Commuting Project (because many were specific to EA), the idea that process deficiencies impinged involvement and learning in the Maple Leaf case was supported by reference to the commuting initiative. For example, foregone conclusion was not only pertinent to planning and decision making in the Green Commuting Project, but it was also likely applicable to public acceptance or adoption of the services offered by the project. One project staff member indicated:

> In addition to the problems of people thinking that the climate is changing and there is little we can do about it, I hear that the solutions are impossible. People do not think that it is possible to change commuter habits (Gerry, May 16, 2000).

Project staff also revealed a cynicism towards public policy efforts in the area of climate change that could reflect the views of inactive publics and is linked to the foregone conclusion theme:

> The federal government brought folks to the table but it sure looks like everyone wants to avoid responsibility. The trucking association's response is to make trucks longer - not to try and get some trucks off the road. This just adds to the perception that nothing can be done. Yet there is lots that can be done, the government itself could do energy conservation in their own buildings and set an example and save money, but they don't (Gerry, May 17, 2000).

5.4.1.3 Alienating dominant discourses

5.4.1.3.1 Extremism

Yet another important structural theme found in the data was alienating dominant discourses, which referred to how the framing of discussions (e.g., setting agenda and terms of debate) in the Maple Leaf case posed barriers to participation and to learning through involvement. A subcategory of alienating dominant discourses was extremism, which reflected suggestions from some interview participants that portrayal of project critics as extremists deterred self-defined moderate members of the public from becoming involved:

> We were certainly painted by some of the media, including the Brandon Sun, and by city council or the mayor, as kind of being in the most despicable of categories, radicals, people who want to change things, people who aren't satisfied with, don't want progress. I think a certain amount of that that stuck to us and may have influenced people who might not want to be seen openly involved in something that we were associated with (Benny, November 9, 1999).
>
> From the start, the Westman Coalition was being represented as extremist. You know, someone called them terrorists, a chamber of commerce guy (Lena, February 1, 2000).
>
> They may not go to the meeting thinking it is for objectors and don't want to be seen as an objector. Some feel shy about that, but meetings aren't intended just for that (Fletcher, January 28, 2000).
>
> The problem is the perception of radical. The perception of activism. That is the negative position. We have to have people who will be loud and speak out. It is a critical part of a community. We have to have these people, but there is a natural reaction, people start to buzz and talk about them as being whatever they are and it is divisive (Sarah, January 31, 2000).

5.4.1.3.2 Nay sayers

Another subcategory of alienating dominant discourses was nay sayers, which captured the idea that critics of the Maple Leaf project were disempowered or marginalized by how the project was consistently framed in overwhelmingly positive terms with little regard being given to potential negative impacts.

> It wasn't sort of raised as this is a good possibility, what do you think? It is like this is going to happen, this is good for the town. So then that put anybody that objected as being the bad guy. Well, why are you objecting? Do you object to jobs? Well, no. Do you object to merchants making more money? Well, no. Do you object to

> Brandon being on the map and getting this new business when they are losing other business? Well, no. Then why are you raising all these questions? Seems you are a little shit disturber and who needs you (Nina, February 1, 2000).
>
> Manitoba Environment insisted, and this came out in the public meetings, and I mean they stated it through the media too, that Manitoba has the best environmental laws in the country. You know what that does? It forces us to argue that point (Chet, November 25, 1999).

5.4.1.3.3 Technical focus

A further subcategory of alienating dominant discourses was technical focus, which pertained to how technical and scientific discourses were inaccessible to many members of the public and presented barriers to widespread public involvement and learning. Of course, technical and scientific discourses are necessary and desirable in most EAs. However, if such discourses predominate and are compounded by process deficiencies such as inaccessible information (Section 5.4.1.2) and lack of participant funding (which was also raised as a problem by interview participants), the technical and scientific nature of the discussions could present a formidable barrier to participation and learning.

5.4.1.3.4 Proponent control of public involvement

Finally, an important tertiary category of alienating dominant discourses was proponent control of public involvement. In Manitoba, as in most Canadian provinces, project proponents have a high degree of control over public involvement in EA (see Section 4.1.2). Controlling public involvement could be a means of controlling agenda and setting terms of debate. For example, it could be used to establish an overly technical agenda or to undermine the public involvement process. This is the perception of some ENGOs, which have registered their displeasure with proponent-driven consultations (e.g., see the interview data cited in Chapter 4 on pages 65 and 74).

The suggestion that alienating dominant discourses constrained public participation and learning through involvement in the Maple Leaf case was supported by data from the Green Commuting Project. Interviews with project staff indicated that public perceptions of

extremism could prevent broad involvement in local climate change initiatives. Staff commented:

> We have to live with the historic antipathy between environmental groups and industry. We went to [Company X] with our original concept. They have a large workforce, largely immigrant, and a huge parking lot. It was clear before even talking to them that they could have an industrial charter bus from the inner city to their site. They said they were not interested but we heard that one-month after our visit they hired someone to look at transportation demand management. We worked hard to educate the people at [Company X] through a number of meetings. I can only assume that when you offer to do a job for someone for free and they say no that they have some problem with the organization - they did not want us involved (Gerry, May 17, 2000).

With respect to overly technical information, a staff member of the Green Commuting Project indicated that, "I don't get questions about the technical nature of the information. The average person has no involvement in the climate change issue. They have not looked at any of the information available." However, there could be a problem relating to communications from the federal government to front line workers involved in local climate change initiatives. A participant in the green commuting case said:

> The whole federal process makes the issue distant from the public – even I don't feel involved. A lot of the material that is being produced is very unreadable. The web sites are complicated, have tons of linkages, and the information is often conflicting (Gerry, May 17, 2000).

5.4.1.4 Lack of institutional capacity

A further structural theme was that citizens were constrained from participating, and hence from learning through their involvement, because of a lack of institutional capacity, which referred to the lack of capability or infrastructure within community institutions to support extensive involvement. This category was developed to capture an idea expressed by a government official, who commented that often "there is no real community around that wants to come to big meetings. In many cases, there will not be a pool of local people around to participate." This notion was also raised by an ENGO representative:

> The ENGO community is pretty poor throughout the province – it really is. A lot of members have never responded or tried to find files, etc. They depend on others to do the legwork. There are certainly people on boards of local ENGOs who have never

> been really engaged in the process – they have just provided comments – they would not know where to look for things (Holly, August 19, 1999).

5.4.1.4.1 Conflicting institutional arrangements

Factors related to institutional capacity have relevance in discussions of barriers to public involvement in local climate change initiatives. Specifically, data from the Green Commuting Project supported the contention that conflicting institutional arrangements could constrain public involvement.[25] In trying to secure the involvement of large organizations, many of which reflect what cultural theorists call a hierarchist value orientation (O'Riordan and Jordan 1999), project staff found that:

> We were surprised how bureaucratic some industrial sites were. It was clear that some – especially the larger ones – were concerned about letting us into their workplace to talk to employees (Gerry, May 17, 2000).
>
> We run into the problem that lots of these companies are big corporations and have all the things that you would expect - nice offices, dress codes, up-to-date computers, and other machines, etc. They look at our office and us and say, if they knew what they were up to they would have more stuff (Gerry, May 17, 2000).

5.4.1.4.2 Lack of institutional flexibility

While recognizing that "the exact amount of elasticity in the institutional structures that frame human agency is a matter of considerable debate" (O'Riordan and Jordan 1999, 82), another factor of institutional capacity that could encumber public involvement in local climate change initiatives is lack of flexibility in institutional settings. Many organizations, largely bureaucratic and hierarchical in nature, approached by the Green Commuting Project lacked sufficient flexibility to participate easily in the services being offered. For example, project staff reported that:

> Finding the right person to talk to is another big problem. Often the first contact does not see themselves as the right person yet they have trouble referring. At [Company Y] I was dealing with the green procurement officer, then the fleet manager, and

[25] I took a broad view of institutional arrangements: informal and formal rules (laws, policies, conventions, norms), organizations (government, civic, traditional), and political structures that establish peoples' relationships to resources, translating interests into claims, and claims into property rights (Berkes 1989; Mitchell 1989).

> finally at a meeting I met a woman from the economics side who was working on projects to reduce the corporation's contributions of greenhouse gases. She was interested and talked internally and they told her to run with it. Then [Company Y] bought [Company Z] and she had no time. She finally put me onto the environmental education specialist who I should have been referred to in the first place. He talked to some people but I could tell he was not into it from the start. He came back saying he and others had no time and... (Gerry, May 17, 2000).

5.4.2 Individual constraints

The analytic framework used in this section adopted a primary, etic category, namely, individual constraints. In the primary category, there were six secondary, emic categories. These were subdivided into tertiary, emic categories, with the exception of two groupings, concerns were adequately addressed and not directly affected (Table 5.11). Individual constraints comprised barriers related to an individual's perception of the project being considered, as well as personal apprehensions regarding one's ability to participate in EA decision making. As before, development of the emic classes were guided by the principles described in Section 3.5.1.

Table 5.11: Individual Constraints on Learning through Involvement in EA

PRIMARY (ETIC) CATEGORY	SECONDARY (EMIC) CATEGORIES	TERTIARY (EMIC) CATEGORIES
individual constraints	concerns were adequately addressed	
	not directly affected	
	left it to others	trust in government
	lack of understanding	legal rights technical issues EA process potential impacts role of the media
	lack of skills	preparing written briefs public speaking
	character traits	laziness indecision shyness apathy paranoia lack of community ethic

5.4.2.1 Concerns were adequately addressed

An important theme within individual constraints was that citizens refrained from participating in the Maple Leaf EAs because their concerns about the project had been addressed and they were comfortable with how the project was proceeding. The following comments from interview participants expressed this idea:

> ...people read the EIS and other relevant documents and did not attend because their concerns had been addressed (Lionel, May 18, 1999).
>
> They do participate to a large degree until they get satisfied in their own mind that, hey, this doesn't look so bad or, hey, I can live with this or I see some benefit here for me and my family or for my community or so on. As soon as they get that feeling, then it becomes a matter of what am I going to do tonight? Am I going to go to a meeting or am I going to cut the grass? Probably the grass wins out (Wynton, January 21, 2000).
>
> The other people who didn't get involved? I guess, once again, they were comfortable. They got as much information as they deemed necessary to make the decision that they felt was good for them (Woody, February 22, 2000).

5.4.2.2 Not directly affected

Another significant theme was that people did not participate because they were not directly affected by the proposed development:

> So, by and large, the direct impacts are on a very localized area, a very small group of people. They may get all fired up and worked up, but nobody else cares (Thelonius, November 10, 1999).
>
> I expect they choose not to participate because the issue does not affect them in a direct way (Ira, June 17, 1999).
>
> Well, I suppose it is like thinking is it really going to impact on me. Because, of course, however it shakes out in the next year or two or three may not have that big of an imprint on people I suppose. It is not next door to me in terms of the physical plant (Nina, February 1, 2000).
>
> And our history here is that the zoning by law, the development plan, things like that, almost no one comes. You have got to be building a hog plant in your back yard to get any interest. Clearly, because that is what it took to get people out (Duke, November 17, 1999).

5.4.2.3 Left it to others

Another theme was that some people were not involved in the Maple Leaf case because they believed others represented their interests. "The silent majority may think their views are represented by interest groups" (Pat, June 30, 1999). "There are people who like to get active with things, others are willing to sit back and let others do it" (Ira, June 17, 1999).

5.4.2.3.1 Trust in government

A strong subtheme of left it to others was that people trusted government in the administration of the EA process:

> Some people may want to leave the issue to elected officials because it is seen as their responsibility. They know that that the proposal is going through approvals at Manitoba Environment and they expect that government will do its job diligently (Fletcher, January 28, 2000).
>
> I guess a fair number of them probably just trusted the process. They thought that Manitoba Environment must know what it is doing. The city must know what it is doing. The Mayor is a nice guy, lets go golfing and let them look after it (Lena, February 1, 2000).
>
> I don't know, there is a certain level of naiveté about, oh well, the Mayor thinks this a good idea, maybe it is a good idea. So, there is naiveté about that I guess. There is trust, whether it is deserved or otherwise is another story (Ella, February 21, 2000).
>
> I think for the most part the majority of people have a view that the people we elect certainly know more than we do because they are closer to whatever the decisions are happening or have that sort of assumption. And say well they must know what they are doing so I am just going to trust them, which I think is bad because why would you trust them. Power corrupts, I feel (Nina, February 1, 2000).

It is interesting that, in contrast to the above views, a provincial government official suggested that lack of trust in government constrained people from participating, recalling the evidence concerning foregone conclusions and unresponsiveness.

> I think the one element, and I think it was present in this case, and it is usually present in a lot of the major cases, is the element of trust. The public doesn't trust government. And they don't trust myself and my staff, who are working in government, that in our view are doing a very good job in terms of identifying issues, resolving issues, protecting the environment. But the public wants to be engaged in these sorts of things. They don't want to trust us. They don't want to talk to us. They don't want to participate with us. And it all revolves around that issue of trust because they just see us as an arm of government, not as a scientific body within

> government that is addressing those issues. And until we sort of break that barrier I think we are always going to be facing this problem. I mean there are some very knowledgeable people out there who can really add value to our process if they want to participate in it. But they want their own forum, they want to do their own things, they don't want to work with us, they don't want to provide us information, they don't want to accept the information that we are giving to them for whatever reason. And I think it all revolves around this trust issue (Ornette, January 28, 2000).

5.4.2.4 Lack of understanding

Yet another recurring theme within individual constraints was that lack of knowledge deterred people from participating, and hence from learning through their involvement. Subcategories of lack of knowledge included legal rights, technical issues, EA process, and potential impacts. Legal rights was not a strong theme, with only one interview participant commenting that lack of knowledge of legal rights prevented individuals from becoming involved. Technical issues was a strong and recurring theme, and echoed the earlier contention that an overly technical agenda formed an alienating discourse that posed a barrier to public involvement.

EA process and potential impacts were also recurrent themes. Regarding the former, one interview participant said, "I didn't realize that there was a process. Everything just seemed to happen so quickly. Like, it just seemed there was talk about something coming to town and then there was mumbo jumbo meetings and then they were building it" (Bessie, February 22, 2000). Regarding the latter, a government official suggested that, "most people without any sort of training have no idea of the potential secondary, tertiary impacts of certain projects. To them, they're simply isolated events... " (Thelonius, November 10, 1999).

5.4.2.4.1 Role of the media

A small but significant subcategory of lack of understanding related to the role of the media. One government official held strong views on the lack of attention paid to environmental issues in the mainstream media in Manitoba:

> The other thing is that in Manitoba, the media is pathetic as far as following environmental issues. I get the Globe and Mail every day at work and almost every

> day there is some extensive article on environmental issues. The report on business section has issues on global warming, has issues on pulp and paper, has environmental issues in there all the time because they realize it's a significant issue. The local papers don't do the research, it's reactive, it's not sort of comprehensive where it gives you some sort of background, gives you perspective. They're just, you know, what's something I can get into the paper to fill a few lines. So, a lot of people who might be interested, even if they read the paper or followed the news and were able to put things in the big picture, don't have that opportunity. So, I really feel that there is no source of information for the public at large to get them engaged (Thelonius, November 10, 1999).

The suggestion that lack of knowledge could have deterred people from participating in the Maple Leaf EAs (and hence from learning through their involvement) is supported by reference to local climate change initiatives. The climate change literature indicates low levels of public awareness of both the causes and impacts of climate change. Moreover, the literature reinforces the suggestion that increased public awareness is a prerequisite for broad involvement in local initiatives (Andrey and Hachey 1995; Public Education and Outreach Issue Table 1998; 1999). The data obtained on the Green Commuter Project are congruent with the literature on these issues.

> The average person has no involvement in the climate change issue. They have not looked at any of the information available. They have only a vague idea from what they get in the newspapers that the government is doing something. Lack of understanding is a problem. My best example is the guy that says climate change is about the CFC's that might leak from his fridge and does not see or realize the link to his car (Gerry, May 17, 2000).

5.4.2.5 Lack of skills

Still another important theme, similar to the one in the preceding section, was that people were prevented from participating (and therefore from learning) by a lack of skills. As one interview participant put it, some members of the public did not become involved because "they don't know how to participate" (Holly, August 19, 1999). Another stated, "they may not feel comfortable in the forums in which they have the opportunity for participation" (Chick, July 16, 1999).

Two subcategories of lack of skills pertained to preparing written briefs and public speaking. With regard to the former, the basic contention was that for many members of the public, "it was difficult to prepare a written submission" (Cab, June 30, 1999) and that this presented a barrier to participation. With regard to public speaking, one interview participant stated:

> A lot of people don't like to get up before more than four people and speak and a lot of people don't have the confidence, and a lot of people don't like to be humiliated. They might get up and say something and say, oh, I should have known that, or they might have been off on some wrong tangent that was answered ten minutes ago. So, people tend to get dazed and confused by a lot of these things. They are just not interested in public affairs and are not on top of it so they could get zinged if they try (Charlie, February 1, 2000).

5.4.2.6 Character traits

The final theme within individual constraints was that people were prevented from participating in the Maple Leaf EAs by complex personal characteristics: "I think that non-participation is a character trait. Or maybe it is a symptom of many character types" (McCoy, February 9, 2000). Subcategories within character traits included laziness ("people may be too lazy" – Fletcher, January 28, 200), indecision ("people are concerned but they are sitting on the fence still" – Stan, August 11, 1999), and shyness ("others were probably reluctant to participate because they don't want to stick out" – Lena, February 1, 2000).

5.4.2.6.1 Apathetic

Another subcategory was apathetic, which captured statements suggesting that some people did not participate because they were disinterested in that type of public discussion (e.g., "often it is because people don't really care" – Duke, November 17, 1999; "I guess I just wasn't interested" – Bessie, February 22, 2000; "there could be a little bit of apathy" – Bunny, June 18, 1999). One interview participant spoke at length on this subject and provided an insightful, if somewhat cynical, perspective:

> I don't even know if the people in the community care whether they live in a democracy or not, if they have sufficient opportunities to consume and sufficient choices to consume and sufficient perceived safety and stability within which to consume. You keep the terrorists off my back, right, and the stuff I consume is safe, okay doesn't make me sick or blow up in my face or fail to work, you know, this

> gizmo works that I just bought, then I really don't care who calls the shots. I don't care who makes the plans for the community. Well, you know, I said I'm being cynical, but when you look at the proportion of the people who even come out to vote, you know when you talk to them, don't you think that your decisions, your participation, your activity will make a difference, I don't know, I mean they might say that they do, but they don't act as if they do (Oscar, November 18, 1999).

5.4.2.6.2 Paranoia

It is interesting to note how one proponent representative interpreted the public alienation evident in much of the data, such as in the sections on foregone conclusion and unresponsiveness (page 131). He suggested that people "feel so mistreated by the quote, unquote system, whatever that means, that they don't think it matters. That happens too. It depends on your degree of paranoia about the world I suppose" (Duke, November 17, 1999).

5.4.2.6.3 Lack of community ethic

Yet another subcategory of character traits, was lack of community ethic, which captured the thesis that a pervading libertarian ethic prevented people from becoming engaged in the Maple Leaf EAs. Interview participants expressed it thusly:

> I can understand why people don't get actively involved. They have a life, man, and it is not a cop out. It is a normal kind of thing to do, but we do have to broaden the ethic (Sarah, January 31, 2000).
>
> It is hard to sort of shoulder the burden on behalf of everybody and do it all. Not unless you have a high moral rationale about doing it, like concern for the environment, or saying, well, I am prepared to make a sacrifice (Nina, February 1, 2000).

5.5 Summary

The case studies reinforce and extend the results of the extensive phase of the research by describing the nature of learning through involvement in EA and highlighting complex structural and individual constraints on participation. A significant form of learning found in the Maple Leaf case was instrumental, technical knowledge regarding waste treatment, including the specific lesson that treating waste from meat processing plants was relatively certain and simple, and the conflicting view that treating such waste was uncertain and

complex. Another notable form of instrumental learning was knowledge respecting legal, administrative, and political procedures. Lessons for project critics included that proponents controlled the EA process, while lessons for proponents included that information meetings were efficacious forms of public involvement. Critics, in both the Maple Leaf and SAR cases, also learned of their need to be involved in normative levels of economic planning and development. Further, project critics developed a strong cynicism towards public involvement in EA, government, and democracy.

Yet another important form of instrumental learning in the Maple Leaf case was social and economic knowledge. The lessons here were diverse, and included that family farming faces a perilous future, big business is good business, and local actions are vitally important to challenging globalization. Another form of social and economic knowledge, the impacts of globalization, reflected an integrated understanding of the linkages among economic systems. The final form of instrumental learning described in Section 5.2 related to potential risks and impacts associated with the Maple Leaf project. Specific lessons within this category encompassed both positive and negative potential impacts, reflecting a balance expressed by most interview participants. What people learned regarding the gravity and extent of potential biophysical impacts was often conflicting, and was associated with whether the learner was a supporter or critic of the project. With respect to potential social impacts, divergent views were expressed on what Brandon could learn from communities with similar experiences. A project proponent was highly skeptical of generalizing from other cases, whereas several critics were keenly interested in experiences from other jurisdictions, as were two critics in the SAR case.

Forms of communicative learning found in the Maple Leaf case included insight into one's own interests, such as fears of jeopardizing family relationships by being too involved in the case, concerns over the state of the environment being left for future generations, and understanding one's role as educator and mediator in community organizations. Another form of communicative learning was insight into the interests of others, and in SAR this included recognizing the importance of transcending entrenched positions for meaningful learning to occur. In addition, for some organizations, insights into the interests of others

revealed common concerns with fellow citizens and organizations. Yet another form of communicative learning dealt with social activism and comprised lessons such as needs for perseverance, complementary forms of critical civic involvement, and greater human and financial resources for ENGOs. This last issue was identified in Maple Leaf and was reiterated by two activists in SAR.

Another form of learning found in both Maple Leaf and SAR was changes in meaning schemes. An important subcategory here was new concepts, which shared a large intersection with instrumental learning. Another small subcategory was more integrated understanding of social and natural systems, including the need for greater holism in EA, such as strategic assessments and integration with regional planning. A third subcategory of meaning schemes, more positive attitudes and feelings towards the community, was relatively small but yet contained evidence from both project critics and supporters. Finally, applied learning was found in the Maple Leaf case, including competence in new patterns of behaviour, planning a course of action, and knowledge and skills for implementing the plan.

With respect to relationships among contextual variables and forms of learning, participants in the Maple Leaf case did not experience communicative learning without also experiencing instrumental learning. Evidence was also found of a relationship (at a .05 level of significance) between whether participants were highly critical or supportive and whether they experienced communicative learning. With reference to instrumental learning, only two participants did not learn anything about potential risks and impacts. In regard to communicative learning, evidence was found of a relationship (at a .05 level of significance) between whether participants were highly critical or supportive and whether they gained insights into the interests of others. Finally, Section 5.3 revealed similar proportions of communicative and instrumental learning across the primary learning venues, and a higher incidence of instrumental learning in all but two of the secondary venues.

Constraints on public involvement, and hence learning through involvement, included both structural and individual barriers. An important structural constraint identified in both the Maple Leaf and Green Commuting cases was involuntary complexity, the idea that the

complexities and time pressures of modern living prevent inactive publics from participating in the civic life of the community. Another notable set of structural constraints in Maple Leaf was related to EA process deficiencies, encompassing the two major subthemes of inaccessible information and foregone conclusion. The latter, a suggestion that inactive publics believe their involvement will not have any effect, was also evident in the Green Commuting case. Yet another structural constraint found in both cases was extremism, a suggestion that inactive publics refrain from participating because they do not want to be associated with extremist positions. Finally, lack of institutional capacity, including lack of resources and inflexible institutional arrangements, was a structural constraint found in both case studies.

An individual constraint identified in both the Maple Leaf and Green Commuting cases was that lack of knowledge deterred inactive publics from becoming involved. Further notable individual constraints identified in the Maple Leaf interviews included: (1) citizens refrained from participating because their concerns had been addressed and they were comfortable with how the project was proceeding; (2) some were not involved because they believed others adequately represented their interests; (3) lack of skills deterred others; and, (4) people were prevented from participating by complex personal characteristics, such as indecisiveness and apathy.

Chapter 6 : EA and the learning imperative

> I do not really wish to conclude and sum up, rounding off the argument so as to dump it in a nutshell on the reader. A lot more could be said about any of the topics I have touched upon. ... The point is not a set of answers, but making possible a different practice.
>
> – Susanne Kappeler, The Pornography of Representation, 1986

The argument was presented in Chapter 1 that environmental assessment's potential as a tool for sustainability is heightened when individual learning occurs based on EA planning and decision-making experiences. It was further argued that since uncertainty and conflict frequently characterize environmental assessment, EA should be reconceived as an exercise in civic exploration dependent on mutual learning among the participants. Based on these premises, two central research questions were examined: (1) To what extent do EA processes in Canada facilitate learning by individuals who participate in the process? and (2) What are the forms of and constraints on learning by EA participants?[26] In response to these questions, the key findings of the research are presented in Section 6.1. The theoretical and conceptual implications of the findings are explored in Section 6.2, while the practical implications are discussed in Section 6.3. Finally, Section 6.4 considers the major contributions of the dissertation and identifies directions for future research.

6.1 Key findings

The key findings of the research, summarized in Sections 4.3 and 5.5, are outlined below and presented in Table 6.1. To provide a measure of concordance with earlier analyses, the findings are organized according to the assessment criteria derived from the ideal conditions of learning, although the case study findings are integrated into the discussion.

[26] Parts of this chapter have appeared in earlier publications (see Diduck 1999a; Diduck et al. 2000; Diduck and Sinclair 2001; Sinclair and Diduck 2001).

Table 6.1: Key Findings Organized by Analytic Constructs from the Ideal Conditions of Learning, Showing Concordant Sections of the Results Chapters

ANALYTIC CONSTRUCTS		KEY FINDINGS	CONCORDANT SECTIONS OF CHAPTERS 4 & 5
Accessible and complete information	1)	There was considerable variability in the quality, quantity, and accessibility of information provided to the public	4.1.1
	2)	Technical and scientific discourses were inaccessible to many members of the public and presented barriers to broader involvement	5.4.1.2.1, 5.4.1.3.3, 5.4.2.4
	3)	Inactive publics refrained from participating due to lack of skills	5.4.2.5
Freedom from manipulation or control	4)	Proponents had largely unfettered authority over how public involvement proceeds, outside of a hearing situation	4.1.2
	5)	Proponents were given little guidance in developing public involvement programs, and standards were not available for gauging the adequacy of proponent-driven programs	4.1.2
	6)	Critics reported learning that proponents controlled the EA process	5.2.1.2.1
Openness to diverse perspectives	7)	Participation at normative and strategic levels of planning was rare, and consultation at the operational level was sporadic	4.1.3.1, 4.1.3.2
	8)	Public participation was constrained by a widespread belief that providing input would not make a difference as the ultimate decision was a foregone conclusion	5.4.1.2.2
	9)	Participants believed that their input would not make a difference since they had failed to see their concerns addressed during the EA	5.4.1.2.3
	10)	Project critics learned of the need to be involved in normative levels of economic planning and development	5.2.1.2.2
	11)	Government officials learned of the importance of integrating EA and planning	5.2.1.2.3
Opportunity to reflect critically on presuppositions	12)	Feedback to participating publics was lacking, and opportunities for unlinked, long-term, critical learning were minor components of public involvement programs	4.1.4
	13)	There was a highly technical focus to the Maple Leaf EA	5.2.1, 5.3
	14)	There was sparse and conflicting evidence that participants developed deeper understanding of connections among social and natural systems	5.2.1.3.1, 5.2.1.3.2, 5.2.3
	15)	Beyond the critical elite there was little evidence of learning concerning the social justice dimensions of development	5.2.1.3
	16)	Insight into the interests of others included recognizing the importance of overcoming entrenched positions for meaningful learning to occur, but little evidence of this found	5.2.2.2.1
	17)	What people learned concerning the gravity and extent of potential impacts was often conflicting and associated with whether the learner was a project supporter or critic	5.2.1.1.2, 5.2.1.2.2, 5.2.1.4.1, 5.2.1.4.3, 5.3
Equitable opportunity to participate	18)	Government support to proponents was disproportionate to support provided to the public	4.1.5.5
	19)	The means by which active publics could become involved were not well established, and opportunities for early involvement were sporadic	4.1.5.1, 4.1.5.4
	20)	Only four jurisdictions had mechanisms for participant funding, which were rarely provided	4.1.5.2
	21)	Several forms of communicative learning pertained to strengthening civil society	5.2.2.1, 5.2.2.2, 5.2.2.4
	22)	Public involvement was constrained by a lack of institutional capacity	5.4.1.4
	23)	There were few examples of applied learning where lessons acquired through involvement in Maple Leaf were applied subsequently	5.2.4
Opportunity to have arguments evaluated in a systematic fashion	24)	Systems were not well developed for integration of public submissions into the decision-making process	4.1.6.3
	25)	Transparency was lacking at many of the key decision-making junctures, outside of public hearings	4.1.6.2
	26)	Participants believed that their input would not make a difference since they had failed to see their concerns addressed during the EA	5.4.1.2.3

6.1.1 Accessible and complete information

There was considerable variability in the quality, quantity, and accessibility of information provided to the public, and opportunities exist for all jurisdictions to make improvements in this regard. Consistent with this, technical and scientific discourses in the case studies were inaccessible to many members of the public and presented barriers to widespread involvement. On a related note, inactive publics refrained from participating because of a lack of skills.

6.1.2 Freedom from manipulation or control

In all but one jurisdiction the proponent had largely unfettered authority over how public involvement proceeds, outside of a hearing situation. As well, proponents were given little guidance in developing public involvement programs, and standards were not available for gauging the adequacy of proponent-driven programs. With respect to forms of learning, the case studies revealed diverse examples of instrumental learning, including the construction of knowledge respecting legal, administrative, and political procedures, a notable aspect of which was that project critics reported learning that proponents controlled the EA process.

6.1.3 Openness to diverse perspectives

Participation at normative and strategic levels of planning was rare, and consultation at the operational level was sporadic. This was not surprising given that, with only one exception, there were not clear legislative requirements for consideration of need and no universal requirements for consideration of alternatives. The lack of legislation has likely had adverse effects on public involvement (and learning through involvement), such as restricting the timing of involvement to operational levels of planning and limiting the scope of issues considered by active publics.

Consistent with this, public participation was constrained by a belief among inactive publics that providing input would not make a difference as the ultimate decision was a foregone conclusion. Similarly, participants believed that their input would not make a difference

since they had failed to see their concerns addressed during the EA process. As indicated in the preceding section, Chapter 5 revealed examples of instrumental learning concerning legal, administrative, and political procedures. Most notably here, project critics learned of the need to be involved in normative levels of economic planning and development. Government officials expressed similar ideas in that they reported learning of the importance of integrating EA and planning.

6.1.4 Opportunity to reflect critically upon presuppositions

Feedback to participating publics was lacking, and opportunities for unlinked, long-term, critical learning were minor components of public involvement programs. Most of the educational opportunities lacked the interaction among community members often necessary for the development of political action and counter discourses. Congruent with this, the nature and incidence of the instrumental learning in the intensive phase revealed the highly technical focus of the Maple Leaf EA. Moreover, there was sparse and conflicting evidence that participants developed deeper understanding of connections among social and natural systems. For many environmental educators, this form of instrumental learning is crucial in the pursuit of sustainable development. For example, for Aldo Leopold, the very purpose of education should be to guide society in the direction of an ethic that values harmony with nature, non-materialistic self-actualization, and recognition of the intrinsic value of the natural environment (Leopold 1966; Pearce and Turner 1990). For Leopold, education should teach us our place in the ecosystem and how to work with "ecological mechanisms" to create mental and material wealth. It should also teach us that if we fail to work *with* those mechanisms, humanity could ultimately be destroyed. Similarly, David Orr (1994) advocated an 'ecoliteracy' that involves an understanding of the connection between thermodynamics and the human economy, the basic principles of ecology and physics, environmental ethics, and practical knowledge about one's local ecosystem.

In addition, although the case studies revealed diverse examples of learning respecting social and economic knowledge, beyond the critical elite there was little evidence of learning concerning the social justice dimensions of development. For environmental educators,

however, this type of learning is critical to the quest for sustainability. As Pepper (1987) observed, progressive ecological change can only be achieved in a dialectical relationship with progressive social change. Learning that improves our instrumental competence for sustainable development will, therefore, also include learning about the linkages among environment, race, gender, and poverty issues (Greig et al. 1987; Courtney Hall 1997; Clover et al. 1998).

Further, a form of communicative learning described in Chapter 5 was insight into the interests of others, which included recognizing the importance of overcoming entrenched positions for meaningful learning to occur. However, neither the Salmon Aquaculture Review nor the Maple Leaf cases yielded significant evidence of participants changing their initial positions on fundamental issues. That is, there was little evidence of changes in meaning perspectives, with most data pertaining to meaning schemes, such as changes in concepts and attitudes. As well, in Maple Leaf, although participants recognized that the project would have both positive and negative effects, what people learned concerning the gravity and extent of the impacts was often conflicting, and associated with whether the learner was a project supporter or critic.

6.1.5 Equitable opportunity to participate

Government support to proponents was disproportionate to support provided to the public. Additionally, the means by which active publics could become involved were often not well established, and opportunities for early involvement were sporadic. Moreover, only four jurisdictions had mechanisms for participant funding and in each of these, funding was rarely provided or the scope of the funding program was quite limited. These findings establish significant imbalances in power and resources within EA public involvement systems in favour of proponent interests.

Consistent with this, the case studies revealed forms of communicative learning pertaining to strengthening of civil society, including insight into one's own interests, insight into the interests of others, and lessons regarding social activism. These lessons included

understanding one's personal role within community organizations, revelation of concerns shared by other citizens and organizations, confirmation of the need for perseverance in social activism, discovery of the need for complementary forms of critical civic involvement, and confirmation of the need for increased resources for ENGOs. Similarly, citizens were constrained from participating because of a lack of institutional capacity, referring to a lack of resources (institutional, human or financial) within the community to develop alternative discourses and support extensive involvement. On a related note, few examples of applied learning were identified, where lessons acquired through involvement in the Maple Leaf EA were applied subsequently, either in the Maple Leaf case or in another context.

6.1.6 Opportunity to have arguments evaluated in a systematic fashion

Systems were not well developed for integration of public submissions into the decision-making process. It was also significant that transparency was lacking at many of the key decision-making junctures, outside of public hearings. However, projects were rarely submitted for hearings, with EA approvals typically decided through political or administrative mechanisms. Consistent with this was the finding, noted earlier, that people were constrained from participating by the belief that their input would not make a difference since they had failed to see their concerns addressed during the EA process.

6.2 Theoretical and conceptual implications

6.2.1 Mutual learning among EA participants

The key findings suggest that the extent to which EA as currently practiced facilitates mutual learning among participants is quite limited, that is, EA processes deviate substantially from the ideal conditions of learning. Canadian processes represent institutional arrangements that fail to provide an "organization of social relations that is bound only to communication free from domination" (Habermas 1968, 53). EA in Canada remains largely within a comprehensive, synoptic paradigm dependent upon bureaucratic and technocratic institutional arrangements dominated by instrumental rationality. Further, learning through participation is constrained by a complex web of barriers to public involvement. Overall,

these factors, depicted in Figure 6.1, establish that the emancipatory potential of participation in environmental assessment is highly restricted. In light of these limiting factors, there is little "chance for the 'force of the better argument' to count as against other means of determining decisions" (Giddens 1992, 173). Opportunities for all participants to define their own meanings, intentions and values are limited, which restricts opportunities to self-define broader goals and community futures. Further, the limits on emancipatory potential impede learning through critical self reflection on sociopolitical presuppositions, the domain in which transformative learning intersects with Freirean critical education (Freire 1970; 1973; 1985; Mezirow 1994; 1996a; 1996b). Without such critical reflection, opportunities for collective mobilization in opposition to dominant social forces are limited.

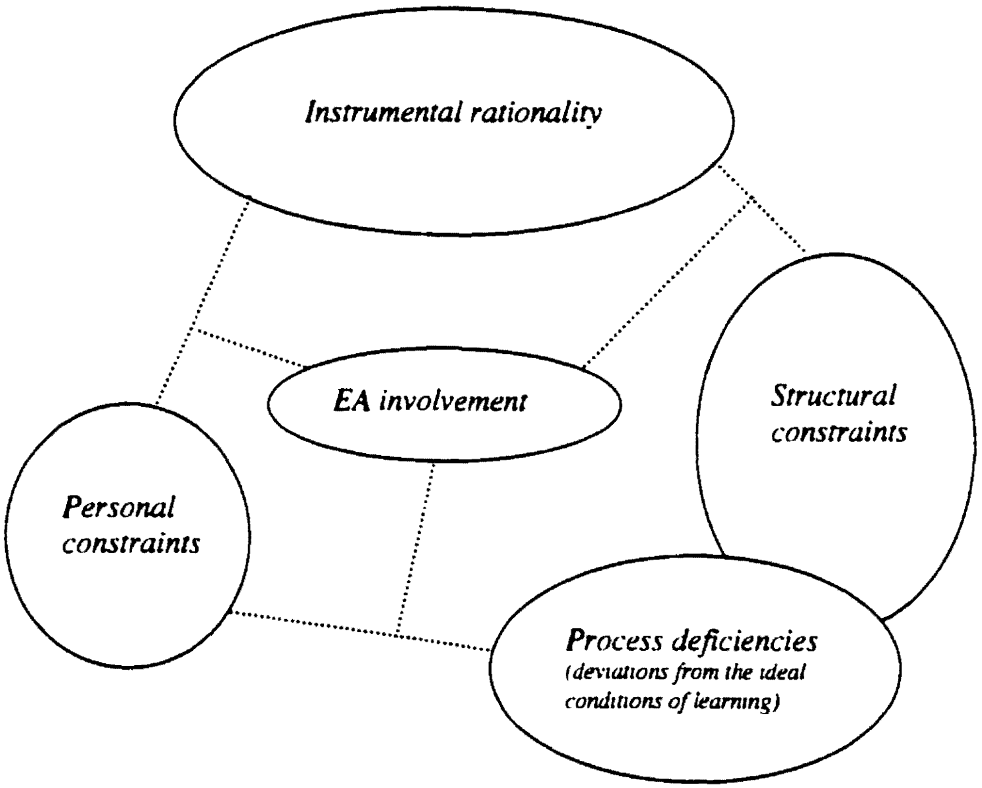


Figure 6.1: Factors Limiting the Emancipatory Potential of Participation in Environmental Assessment

Given the foregoing, the emancipatory potential of involvement in EA, and opportunities for mutual learning, could be increased with greater flexibility in EA institutional arrangements to accommodate incremental or transactive approaches to public involvement. With reduced emphasis on instrumental questions and increased attention to broader normative issues, such approaches would accommodate diverse interests and values and would involve deliberative learning opportunities. Existing EA processes would require significant restructuring, or complete reconceptualization, to accommodate incremental or transactive public involvement. Short of such restructuring, however, specific reforms that would increase opportunities for mutual learning include more accessible and complete information, earlier public involvement, higher degrees of involvement, continuous or deliberative involvement, and capacity enhancement among civic organizations. These and other reforms are discussed in greater detail in Section 6.3 with reference to specific findings.

6.2.2 Learning through involvement in EA

The key findings highlight the extent and importance of informal learning through participation in EA. In a previous publication (Sinclair and Diduck 1995), I argued that critical non-formal education should be viewed as a precondition to effective public involvement, but the dissertation has led me to believe that informal learning through involvement is a more basic concern. In some respects, this conclusion provides indirect support for those studies that have illuminated the limits of empowerment through non-formal education (e.g., Richardson et al. 1993; Regnier and Penna 1996).

Despite the extent and importance of informal learning, the findings question EA's potential as a vehicle for individual learning for sustainable development. Given the limited emancipatory potential of participation in EA, environmental assessment offers limited potential to further social objectives of sustainability, such as local participation, empowerment, and equity. As reported, project critics developed cynical views towards public involvement and democratic processes in general, and reported learning of a need to be more involved at normative levels of planning and decision making. This was identified in both Maple Leaf and SAR despite differences in the types and degrees of involvement

found in the two cases, suggesting that public involvement principles have become highly marginalized in Canadian environmental assessment. Consistent with the demand for normative involvement, government officials, at least in the Maple Leaf case, reported learning of a need for more holism in EA, including greater integration with broad land use planning.

As well, the nature and incidence of instrumental learning found in the cases confirm the ongoing dominance of conventional growth-oriented economic approaches. Further, the lack of interest among the project proponents in learning from experiences in other jurisdictions suggests that larger contextual variables could counter what participants learn through involvement in EA as it is currently structured. This is supported by the lack of significant evidence of participants having changed their basic positions (or having experienced changes in frames of reference).

All of this serves to further establish the need for institutional restructuring or reform to accommodate incremental and transactive approaches to public involvement. Nelson and Serafin (1995) and Cardinall and Day (1998) have argued that in the face of uncertainty and conflict, EA should be reconceived as a form of civic exploration of unknown futures. Consistent with this, and borrowing from Christenson's (1985) approach to planning in the face of uncertainty, my argument is that EA in Canada requires flexible institutional arrangements to permit adaptations in response to planning and decision-making circumstances. With reference to Figure 6.2, sufficient flexibility is needed to allow movement along the EA axis in response to varying degrees of uncertainty and conflict. This approach would counter the factors limiting the emancipatory potential of EA in settings characterized by high conflict and uncertainty, when public involvement should be of paramount concern. Emphasizing communicative learning, early involvement, high degrees of involvement, and institutional capacity enhancement, this approach would improve EA's potential as a vehicle for sustainable development.

As noted, existing EA processes would require significant restructuring, or complete reconceptualization, to accommodate the model contemplated here. Although the reforms

suggested below do not address this larger issue, they represent important increments in the restructuring project. At the very least, they represent a reorientation of EA as a force in the learning for sustainability imperative.

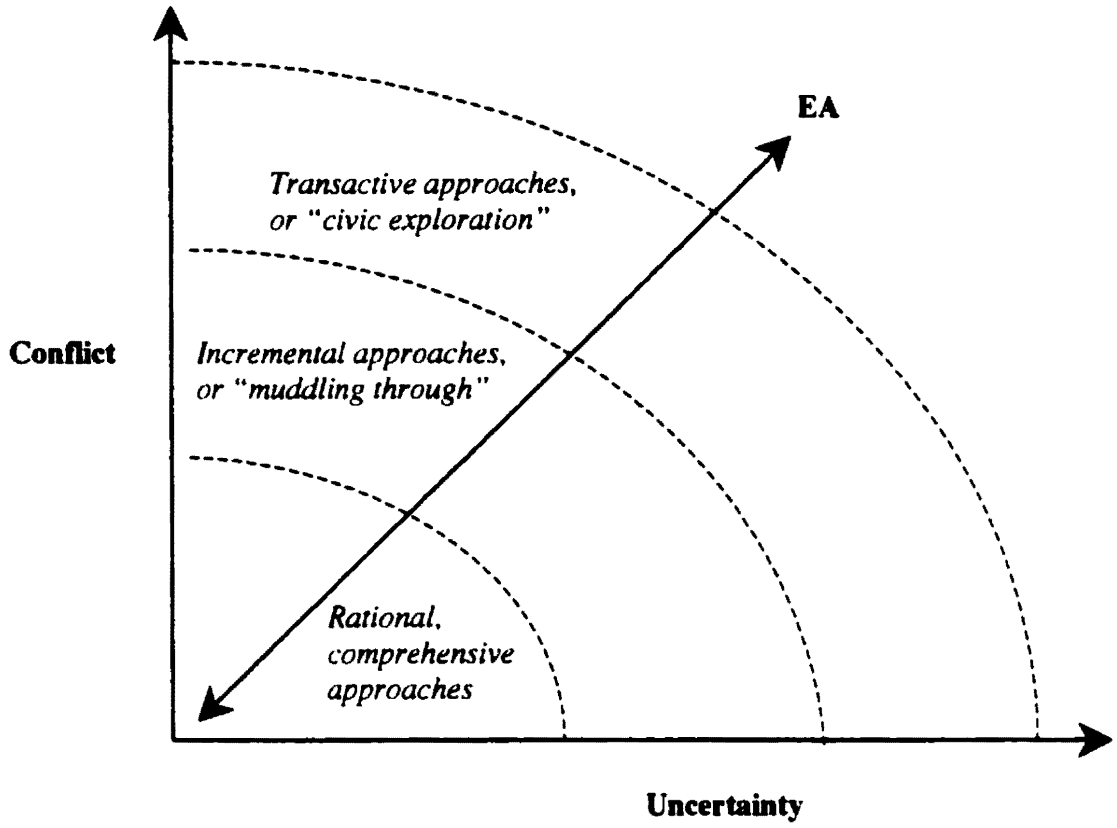


Figure 6.2: An Adaptive Approach to Public Involvement in Environmental Assessment (After Cardinall and Day (1998))

6.3 Practical Implications

The key findings and their theoretical implications have practical extensions regarding the administration and design of EA processes. These are considered in the ensuing discussion, and a set of reforms is summarized in Section 6.3.7.

6.3.1 Accessible and complete information

Given the findings regarding accessible and complete information, noted in Section 6.1.1, a priority should be improving Internet access to registry systems, including public comments on pending proposals. For most jurisdictions, this means providing or increasing access, but for others (e.g., British Columbia and Canada) it means refining or streamlining the access points. For all jurisdictions, it likely includes further consideration of equity issues pertaining to unequal opportunities of access between rural and urban populations and among socioeconomic groupings.

A further priority for improving the provision of information, and of potential assistance in overcoming barriers to Internet access, is extending registry access through regional offices or local partners (e.g., municipal libraries). Yet another priority should be production of detailed guidance documents on how interested publics could become involved in the process. Still another is development of a research program into the readability and understandability of environmental impact statements and other EA case documents. Building on empirical studies from the United States (e.g., Gallagher and Patrick-Riley 1989; Gallagher and Jacobson 1993; Sullivan et al. 1996), this program should focus on means of facilitating learning and involvement by interested publics. A research agenda along these lines could be coordinated through organizations such as the Environmental Planning and Assessment Caucus of the Canadian Environmental Network, or the existing network of senior Canadian environmental assessment administrators that meets annually.

The foregoing also suggests an opportunity for standardization in the provision of public information respecting EA. This could increase interjurisdictional equity but raises several implementation challenges, such as variations in budget capacities across jurisdictions. Standardization could be spearheaded by the organizations referred to above in cooperation with the Canadian Standards Council and the Canadian Council of Environment Ministers. All of these organizations have longstanding interests, including current projects, respecting the development of standards in EA (Hazell 1999; Whalen 2000).

An advantage of the reforms suggested above is that policy makers or EA officials could implement them with relative ease. All agencies have existing guidance documents of some type, and have access to department or government web sites where documents could be posted. As well, the reforms could likely be achieved without legislative amendments or significant policy changes.

6.3.2 Freedom from manipulation or control

The findings regarding freedom from manipulation and control (Section 6.1.2) suggest that it should be a priority for governments to reclaim responsibility for the design and implementation of public involvement programs. Doing so would counter the inherent conflict of interest in having proponents manage the involvement of publics who are potential critics of the proposal (despite the predominance of the rational approach in government planning systems and the close ties often found between government agencies and project proponents). Afterall, EA agencies have legislated mandates to promote sustainable development and to protect the environment in the public interest. An alternative, or perhaps complementary, suggestion is for interested publics to have greater participation in the planning and implementation of involvement programs. This would not only represent earlier and higher degrees of involvement, it could also be of practical significance since the capacity of many EA agencies has been diminished in recent years due to fiscal restraint in government. A further alternative, echoing the suggestion in the preceding section, is for EA agencies to pursue standardization of enforceable public involvement principles and guidelines. Such reforms would merely put into practice the policy objective found in most Canadian EA processes promoting broad citizen participation.

On a more general level, the findings pertaining to responsibility for public involvement suggest that the imperatives driving the devolution of public involvement from government to industry (whether they relate to applying a business ethos to public administration or to under-financing of public institutions) have jeopardized the public interest. Or, at the very least they have diminished a valuable public good, namely, citizen engagement in the civic life of the community.

6.3.3 Openness to diverse perspectives

Given the findings regarding openness to diverse perspectives (Section 6.1.3), an additional area for reform pertains to the timing of public involvement. The findings suggest a need to formalize requirements for public involvement at normative and strategic levels of planning, including consideration of need, purposes, and alternatives. Doing so would not only strengthen EA planning and decision making and empower active publics, it also would create opportunities for critical reflection upon basic presuppositions underlying matters of development. As transformative theory indicates, such opportunities are necessary for adult learning, particularly changes in fundamental meaning perspectives. In addition, these potential learning benefits could be enhanced with improvements to feedback mechanisms for participating publics. A modest improvement in feedback loops was suggested in Section 6.3.1, namely, increased Internet access to comments filed in the public registry. Another improvement in this area would be the development of non-formal education forums involving interaction among community members and critical discussions of proposed developments.

Participation at normative and strategic levels of planning would help address operational barriers related to foregone conclusions and unresponsiveness to input. It would also help respond to cognitive barriers presented by technical discourses, lack of understanding, and lack of skills.

6.3.4 Opportunity to reflect critically upon presuppositions

The findings noted in Section 6.1.4 support the reforms suggested in the preceding section, namely, early public involvement and ongoing non-formal education. Further, they suggest an opportunity and a need to promote the importance and potential of EA among inactive publics. Consistent with Section 6.3.3, EA promotion should take a critical and deliberative approach, focusing on empowerment of resource communities and active participation in the civic life of the community. And rather than behaviouristic mechanisms such as social marketing and advertising, it should rely on democratic and dialogical methods.

Key findings also suggest a need for broader EA scoping to include increased attention to the social justice issues of development, and to linkages among human and natural systems. Finally, the findings regarding overcoming entrenched positions suggest that process reform should encompass the adoption and implementation of mechanisms for alternative dispute resolution (ADR). This has been discussed in the literature for some time (Buckle and Thomas-Buckle 1986; Emond 1988; Sadler 1993), and several Canadian processes contain ADR provisions. However, such provisions are rarely used.

6.3.5 Equitable opportunity to participate

Given the mandates of EA agencies to promote sustainable development and to protect the environment in the public interest, Section 6.1.5 suggests it should be a priority for governments to redress existing process and resource imbalances favouring proponents. A practical means of doing so, and one that has received considerable attention in the literature (e.g., the references cited on page 72), is to establish participant funding mechanisms. Such mechanisms, if funded largely by proponents, would help internalize negative externalities, and could result in Pareto improvements (net gains in the social benefits of economic development) (Randall 1987; Pearce and Turner 1990). Funding would also enable interested individuals and organizations to consider development proposals from a broad public perspective. Further, it would help ensure substantive equality (or equity) in opportunities for participation. Funding would also enhance opportunities for transformative learning through interaction among community members and critical discussion of project proposals. In several jurisdictions, comprehensive participant funding reforms would build on existing commitments to provide funding in hearing situations.

It was argued previously that reforms are necessary to increase deliberative and critical public involvement at all levels of planning, particularly at normative and strategic stages. In addition to the benefits described earlier, such reforms, in conjunction with increased participant funding, would expand learning opportunities beyond the leadership of active publics, and thereby enhance organization and development in civil society. Doing so is vital for achieving sustainability objectives (Goodland and Daly 1995), and is consistent with

several streams of environmental education (Disinger 1990; Sterling and EDET Group 1992, cited in Palmer, 1998; Fien 1993). It is also consistent with the transactive model of planning, in which strengthening civil society is viewed as a means of promoting collective self-reliance and creating a future less tied to the dynamics of industrial capitalism (Friedmann 1987).

6.3.6 Opportunity to have arguments evaluated in a systematic fashion

Section 6.1.6 suggests that transparency and the decision-making process would be improved through increased use of open, quasi-judicial procedures, such as public hearings. This position is congruent with that of several ENGOs, which have, as discussed earlier, equated hearings with more impartial decisions. A drawback with this position is that hearings are often associated with undue delays, significant costs, and exclusive procedural hurdles. The findings also suggest that transparency and the decision-making process would be improved with increased public involvement in political and administrative decision-making mechanisms. This alternative would increase the degree of participation in the process and hence empower active publics (Arnstein 1969; Rocha 1997). This is significant because it would afford new opportunities for informal education in EA, and could result in new types of learning, not evident in the case studies presented in this research.

6.3.7 Summary of EA process reforms

A summary of the reforms outlined in the foregoing discussions is presented in Table 6.2. The reforms, targeted to EA administrators and public policy makers, are prioritized as high, medium, or low, and labeled as short-term or long-term objectives. Several of the recommendations would likely encounter little opposition and could be implemented with relative ease. They represent extensions of existing services or programs, and could be achieved without legislative amendment or major policy changes. This applies to the reforms regarding information provision, and is true of the recommendations respecting opportunity to reflect critically upon presuppositions. These recommendations are thus viewed as short-

term objectives, and since they do not logically have to be acted upon before others could be taken up, they are classed as low priority.

Table 6.2: Priorities for EA Process Reform in Aiding Public Involvement and Learning for Sustainability, Organized by Analytic Constructs from the Ideal Conditions of Learning

ANALYTIC CONSTRUCTS	SPECIFIC RECOMMENDATION
	Low Priority / Short-term
Accessible and complete information	1) Improve Internet access to registry systems, including public comments on proposals
	2) Provide or increase Internet access, and refine or streamline the access points
	3) Consider the equity issues pertaining to unequal opportunities of Internet access
	4) Extend registry access through regional offices or local partners
	5) Produce detailed guidance documents on how active publics could become involved
	6) Develop a research program into the readability and understandability of EA documents
	7) Standardize the provision of public information respecting EA
Opportunity to reflect critically upon presuppositions	8) Promote the importance and potential of EA among inactive publics
	9) Focus on linkages among social and natural systems
	10) Include the social justice dimensions of development, including race, gender, and poverty issues
	11) Adopt and implement alternative dispute resolution mechanisms
	Medium Priority / Short-term
Equitable opportunity to participate	12) Redress existing imbalances in favour of proponents
	13) Establish participant funding mechanisms, funded largely by proponents
	High Priority / Short-term
Freedom from manipulation or control	14) Regain authority for the design and implementation of public involvement programs
	15) Involve active publics in planning and implementing participation programs
	16) Standardize enforceable public involvement principles and guidelines
	High Priority / Long-term
Openness to diverse perspectives	17) Formalize requirements for public involvement at normative and strategic levels of planning, including consideration of need, purposes, and alternatives
	18) Increase deliberative and critical public involvement, including interactive, critical non-formal education, at all levels of planning
Opportunity to have arguments evaluated in a systematic fashion	19) Increase the use of open, quasi-judicial procedures, such as public hearings
	20) Increase shared decision making in political and administrative processes
	21) Improve feedback mechanisms for participating publics

In contrast, other reforms would likely encounter formidable opposition and complex implementation challenges. As discussed in Chapter 4, industries in Canada have not been

quick to accept public involvement in normative and strategic levels of planning. Environmental assessment (including public involvement) of need, purposes, and alternatives has been viewed as unjustified government intervention in the market. Moreover, this view is unlikely to change in the near future, given the predominance of laissez-faire ideology and continuing trends toward deregulation. In overcoming these barriers, policy makers should likely focus on partnerships between industry and civic organizations, rather than state-oriented mechanisms, since the latter have fallen into disfavour. Such a focus is a manifestation of a central concern in the continued expansion of free trade, namely, reconciling local initiatives with globalized economies. For this reason, and despite the implementation challenges, formalizing requirements for public involvement at normative and strategic levels of planning (including consideration of need, purposes, and alternatives) is likely the most important reform in Table 6.2. It should, however, be viewed as a long-term objective, and reform advocates should not expect it to be accepted readily by government or industry. Another singularly important, long-term objective, also likely to encounter political opposition, is improving transparency in decision making. The recommendations here affect degree of public involvement, and are related closely to the suggestions regarding timing of involvement, since earlier involvement often implies higher degrees of participation.

In support of the foregoing long-term objectives, it is critically important for governments to regain authority over the design and implementation of public involvement programs. A short-term objective, this needs to be acted upon before the recommendations regarding timing and degree of involvement can be taken up, and is thus viewed as high priority. Also in support of the long-term objectives, it is important for governments to establish mechanisms for participant funding. This is a short-term objective that could be implemented in conjunction with reclaiming responsibility for public involvement. Although establishing funding mechanisms reinforces the long-term objectives, it is viewed as a medium priority since it does not logically have to be acted upon before the other reforms could be adopted.

6.4 Contributions to knowledge and directions for future research

The dissertation is original research that contributes to theoretical, conceptual, and empirical knowledge. A primary contribution is to nascent theory linking environmental assessment, learning and sustainable development, an aspect of which asserts that EA's potential as a vehicle for sustainability is heightened when learning occurs based on EA experiences. My research contributes to the literature seeking to reconceptualize public involvement in EA within a learning-centered paradigm (Nelson and Serafin 1995; Cardinall and Day 1998), and offers a new entry point for researchers pursuing this idea. Further, it contributes to the diverse literature on learning issues in EA (e.g., Gallagher and Jacobson 1993; Sinclair and Diduck 1995; Webler et al. 1995; Regnier and Penna 1996; Sullivan et al. 1996; Meredith 1997) by grounding its analysis in a comprehensive theory of adult learning. In addition, it is distinct because of the breadth of learning variables investigated, including contextual factors, constraints on involvement, and forms of learning. The dissertation established that the extent to which EA facilitates mutual learning among participants is quite limited, that is, EA processes deviate substantially from the ideal conditions of learning. It also questioned the emancipatory potential of participation in environmental assessment, and illuminated factors limiting that potential. Further, although it illuminated the extent and importance of informal learning through participation in EA, it questioned EA's current potential as a vehicle for individual learning for sustainable development. Finally, it suggested the need for institutional restructuring or reform to accommodate incremental and transactive approaches to public involvement in EA.

The dissertation also contributes to knowledge regarding transformative learning theory. It provides empirical depth to key elements of the theory, such as instrumental and communicative competencies and the ideal conditions of learning. Particulars in this regard include technical knowledge regarding waste treatment, attitudes respecting legal and administrative procedures, social and economic knowledge, insight into one's own interests, lessons respecting social activism, and constraints on public involvement. In addition, the research builds on Alexander's (1994; 1999) work in the area of land use planning by extending transformative theory further into the realm of resource and environmental

management. Specifically, the dissertation shows how the theory can be useful for improving understanding of public involvement in environmental assessment. This new application of the theory not only illuminates involvement in EA, but demonstrates the relevance of the theoretical framework to yet another empirical setting.

Another contribution of the dissertation is to conceptual knowledge, in particular, the development of unique evaluative criteria and analytic constructs. The criteria adapted from the ideal conditions of learning and the analytic constructs related to instrumental and communicative learning contribute to existing frameworks (e.g., Homenuck et al. 1977; Godschalk and Stiftel 1981; Smith 1983; Webler et al. 1995; Moote et al. 1997; Schweitzer et al. 1998) for the assessment of public involvement in resource and environmental management. They provide a new entry point for researchers investigating the learning aspects of involvement, and are unique in their concern for communicative competencies and the social context of learning. As well, the analytic constructs related to individual and structural constraints provide a unique framework for investigating barriers to participation. The few studies that have discussed barriers have tended to list potential constraints without employing a larger analytic framework (e.g., Praxis 1988; Smith 1993; Wood 1995; Petts 1999). A notable exception is Frideres et al. (1992), who focused on a structural analysis.

With respect to empirical knowledge, the dissertation supplements and advances understanding of citizen engagement in environmental assessment in Canada. It provides an extensive picture of EA public involvement systems and a unique, intensive view of forms of learning experienced by EA participants. It also contributes to knowledge of barriers to public involvement in EA, rarely the subject of direct empirical research (Frideres et al. 1992). Further, the dissertation contributes a comprehensive set of recommendations to EA administrators for reform in EA administration and practice. Although some of these reforms have been discussed previously in the literature, they are unique as a package and serve to reorient EA as a forum of learning for sustainable development.

Given the foregoing, the dissertation presents an entry point for research regarding connections among learning, public participation, and environmental assessment in

developing countries. It also suggests an opportunity to investigate learning and involvement in areas of resource and environmental management other than EA, such as public awareness and social marketing of waste minimization. Extending the research in these ways would enhance opportunities for theory development and illuminate broader policy implications.

A narrower approach, but still one providing opportunities for theory development, would be to focus on case studies of EA processes that approximate the ideal conditions of learning. This type of research could focus on cases with early public involvement, including opportunities for consideration of project need and alternatives. Alternatively, it could center on EAs with high degrees of involvement, including participation in decision making. A further option would be to examine cases evidencing diverse deliberative involvement mechanisms, such as public hearings. Finally, a research agenda of this sort could include cases in which public involvement was supported by devices for capacity enhancement among civic organizations, such as participant funding.

An opportunity also exists to extend transformative theory from individual to social learning in environmental assessment. Doing so would contribute to social learning theory by applying an emerging, unique, and comprehensive theoretical framework. It would also provide insight into linkages between individual and social learning, such as critical self reflection, sociopolitical consciousness, and individual competencies related to collective social action. Further, by seeking connections among transformative concepts and social learning constructs, such as capacity enhancement, institutional memory, and feedback mechanisms, this type of research has potential to revise transformative theory. In addition, since few studies have focused on social learning in EA, research such as this will contribute to EA theory by examining instrumental and communicative competencies of organizations in the quest for sustainability. Beyond EA, this sort of research has broader implications, including providing insight into the dynamics of interactions among institutional arrangements and resource systems.

6.5 Reflections on methodology

As noted in Chapter 3 and elsewhere, my dissertation research was interactive and adaptive. This involved making changes to the research questions, study design, methods, and data sources in response to opportunities and challenges that arose during the investigation. In earlier chapters, when reporting on design, methods, and results, I also reported on the circumstances and motivations for adaptations. Doing so was necessary to ensure the trustworthiness (credibility and dependability) and generalizability of the research. Upon completion of the dissertation, I offer the following brief comments on the advantages and disadvantages of taking an interactive and adaptive approach. The ensuing discussion, in some ways, completes the audit trail and reporting of the research, and further illuminates my dissertation experience.

A primary advantage of the interactive and adaptive approach was that it enabled me to identify opportunities to adopt new data collection methods (namely, participant observation) and data sources (namely, diverse interview participants with potentially conflicting political and economic interests). Doing so increased the use of triangulation and thereby enhanced the credibility of the findings. I am confident that by adopting multiple methods and sources I increased the degree to which the research findings are credible or recognizable to the people whose realities were studied.

Another advantage of the interactive and adaptive approach was that it encouraged me to be both rigorous and reflective in making decisions during the investigation, and in preparing the dissertation. By documenting my assumptions, theoretical orientations, and sampling decisions, and by providing an audit trail regarding data collection and analysis (e.g., category construction), the credibility of the research was improved. That is, the understandability of the findings to those outside the direct experiences of the research participants was enhanced. These methods also improved the dependability of the study by shedding light on the linkages among data, results, and conclusions.

A primary disadvantage of being interactive and adaptive was that it increased the risk of being opportunistic rather than methodical in my decision making, and in fact this occurred

during the case selection process. As noted in Chapter 3 and various appendices, the extensive phase of the research was initially conceived as a general examination of Canadian EA processes to construct a sampling frame and select three EA cases for intensive, comparative study.[27] My original idea was to apply five selection criteria: (1) presence of non-formal, adult education conducted by ENGOs; (2) application of an EA process that permitted comparison with the ideal conditions of learning; (3) circumstances that approximated a disorienting dilemma; (4) favourable practical factors; and, (5) recency of the case. The criteria were to be applied to both processes and cases, and a sampling frame of cases was to be developed. The cases were to be selected using a mixed approach (theory-based selection with extreme and representative examples).[28] Ultimately however, I gave more weight to criteria (4) and (5) than I had anticipated, although each criterion was applied in selecting the three cases.[29]

Despite giving considerable weight to criteria (4) and (5), by selecting the Salmon Aquaculture Review and the Maple Leaf cases, I was still on track for theory-based selection with SAR being an exemplary case and Maple Leaf being a middling or poor case. The variation related to criterion (3), that is, the degree to which the processes approximated the ideal conditions of learning. I then decided to go with three unequal cases, that is, a primary case study with selected comparative analyses involving secondary cases. This decision was based largely on pragmatic grounds, and ultimately undermined the theory-based sampling because I didn't have sufficient data regarding SAR to do intensive theoretical comparisons. Essentially, I ended up with a one-shot case study with two superficial satellite cases that permitted only selected and cautious theoretical comparisons.

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[27] This purpose was met, but the extensive phase also evolved into the assessment based on the ideal conditions of learning presented in Chapter 4.

[28] During this analytic process, a number of tentative analyses were started: a detailed assessment of processes using critical education criteria; an ordinal ranking of processes using the ideal conditions of learning; and, a sampling frame of potential cases.

[29] Ultimately, criterion (1) became irrelevant because the non-formal education aspect of the research questions was dropped, as the focus on informal learning was given higher priority.

In hindsight, I should have been more methodical in my case selection decisions, which would have strengthened the comparative case study dimensions of the research. By simplifying the selection criteria and focusing on the ideal conditions of learning, the potential for theoretical comparisons would have been enhanced significantly. Related to this is the need to have treated the Salmon Aquaculture Review in greater depth because, as noted, the decision to limit the depth of the secondary cases prevented full development of theory-based comparative analysis. However, if the secondary cases were studied in greater depth, I would not likely have chosen the Green Commuting Project. I would have sought another EA case that offered more meaningful comparisons within the theoretical framework of the project.

As an aside, an alternative to treating the secondary cases on par with Maple Leaf, would have been to delete the secondary cases and strengthen the Maple Leaf case study. This could have included adding a longitudinal dimension, such as further interviews and observations of interactions in community organizations and local institutions. This approach would have helped diversify the evidence available, and could have provided evidence of behaviour change over time.

Another approach altogether would have been to choose the case studies (still using theory-based sampling to permit theoretical comparisons) from the same jurisdiction. This would have provided more consistency in broad contextual factors related to social, political, and economic settings. In hindsight, I likely should have paid greater attention to contextual factors throughout the research, from conceptualization to data analysis. Contextual factors, including political dynamics, institutional arrangements, community value systems, worldviews, and socioeconomic conditions, are likely as important or more important to informal learning through involvement in EA than is the design of EA process. Contextual factors likely affect the range of forms of learning identified in this study, including the lessons pertaining to democracy, government, and civic participation. As discussed, many EA participants expressed cynicism regarding the value of participation, and came away from the process feeling alienated from their local and provincial governments. In Chapters 5 and 6, I linked lessons such as these to EA process, but it is reasonable to ask whether they

have more profound connections to larger contextual (or structural) variables. In fact, in the end, we may find that learning through EA is not enough to fuel the drive to a more sustainable society. We may find that regardless of how EA processes are designed, contextual factors are the most significant variables affecting informal learning by EA participants. This simply highlights the need for ongoing research into individual and social learning, and its role in the dynamics between social and natural systems.

Appendices

Appendix 1: Research questions from the original dissertation proposal

The central research question was: In selected Canadian EA cases, what, if any, were the causal explanations linking non-formal, adult education, the learning experiences of participants, and public involvement in the process? The main subquestions were:

- What were the dimensions of the non-formal, adult education being conducted? (What was taught? How was it taught? Why was it taught? Who did the teaching?);
- What were the dimensions of the learning experiences of EA participants? (Who were the learners? What did they learn? How did they learn it? Why did they learn it? What, if any, were the effects of the non-formal, adult education on the learning experiences? What, if any, were the effects of the informal adult education on the learning experiences of EA participants?); and,
- What was the nature of the publics' involvement in the EA process? (How were the publics involved? Why were they involved? What were the outcomes? What, if any, were the effects of the non-formal, adult education and learning on involvement? If there were effects, how and why did they occur?).

Appendix 2: A framework of non-formal adult education for EA participants

My Master's research identified correlations of varying strength among several variables: readership of documents presenting the pro-development position; understanding of the pro-development position; understanding of the EA process; critical thinking towards the pro-development position; critical thinking towards the EA process; whether or not the participant was involved in the public hearings; and, level of involvement in the public hearings. Further analysis, adopting a critical approach to education (Freire 1970; 1985), suggested additional variables that could be important in the process: understanding of and critical thinking towards positions counter to the dominant, pro-development position; understanding of and critical thinking towards the counter positions; quality of public involvement in the public hearings and other aspects of the EA process; understanding of and critical thinking towards interests and structures underlying the positions presented in the case; dialogue and cooperation among participants with similar interests; and, efforts to effect personal and social change.

Appendix 3: Selected social learning issues raised in evaluations of EA processes and assessments of public involvement

In a comprehensive international investigation of EA effectiveness, Sadler (1996), among other things, conducted a survey of EA practitioners and managers. One result was that a majority of respondents viewed EA as a learning process with important benefits beyond informing decision making and achieving environmental protection. Significant learning-related benefits included social learning, such as greater public awareness of environmental concerns, better coordination among agencies, and improved acceptance of public involvement and input.

Drawing on the notion of EA as a social learning process, numerous authors have conducted post hoc assessments of EA processes in specific cases. Such assessments are thought to be necessary for EA processes to be dynamic and iterative (Jones and Greig 1985; Federal Environmental Assessment Review Office 1988; Davies and Sadler 1990; Sadler 1990; Nelson and Serafin 1995; Sadler 1996). Post hoc assessments have included audits of impact predictions to determine their accuracy (Munro et al. 1986; Buckley 1989, cited in Sadler 1996; Bailey and Hobbs 1990; Australian National Audit Office 1993, cited in Sadler 1996; Culhane 1993; Locke and Storey 1997) and more holistic post-project analysis or retrospective assessment (King and Nelson 1983; Sadler 1990; Mathers et al. 1994; Boothroyd and al 1995; Gibson and Day 1995; Bitondo 2000).

An issue related closely to post hoc assessments is the capacity of EA processes to adapt to new opportunities and challenges (Federal Environmental Assessment Review Office 1988; Wood 1995; Sadler 1996; Barker and Wood 1999). An important study of this issue was by Doyle and Sadler (1996), who did a comparative analysis of the effectiveness of Canadian EA processes. Adaptive capacity, or 'living process', was one of ten attributes examined in the evaluation, and four dimensions of adaptive capacity were assessed: (1) incorporation of new EA technologies; (2) incorporation of public involvement; (3) incorporation of changing

community values regarding aspects of the environment; and, (4) efforts to improve institutional capacity to administer and conduct EA.[30]

Another issue related to social learning is the impact of EAs on decision making (e.g., Rees 1981; Rees and Boothroyd 1987; Canadian Environmental Assessment Research Council 1988; Gibson 1992; 1993; Wood 1995; Canadian Environmental Assessment Agency 1996; Doyle and Sadler 1996; Sadler 1996; Barker and Wood 1999). In several studies, impacts on decision making were measured by the number or proportion of projects modified or cancelled as a result of the application of the EA process (Canadian Environmental Assessment Agency 1996; Barker and Wood 1999). Other studies considered a different dimension of the issue, namely, the integration of environmental considerations into project planning and design or regional planning (Rees 1981; Munro et al. 1986; Gibson 1992; 1993; Tesli 1995, cited in Sadler 1996; Wood 1995; Canadian Environmental Assessment Agency 1996).

Finally, consistent with the organizational development stream of social learning theory, Keith and Mulvihill (1995) used a four-stage model to examine learning and life cycles in four EA organizations in Canada's North.

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[30] As revealed in Chapter 4, the evaluative framework in phase one of the dissertation relied on indicators similar to Doyle and Sadler's (1996) dimensions of 'living process'. In phase one, the question of whether the EA process was subjected to continuous improvement was used as an indicator of the criterion of openness to alternative perspectives. This is similar to Doyle and Sadler's (1996) dimensions (1) and (4), listed above. As well, the question of whether systems exist for integration of public submissions was examined as an indicator of the criterion of opportunity to have arguments evaluated in a systematic fashion, and this is similar to Doyle and Sadler's dimensions (2) and (3).

Appendix 4: Application of the case selection criteria

For the purpose of applying the case selection criteria, data collection and analysis began with a review of documents, primarily from government sources. The review focused on EA public involvement systems in each of the jurisdictions examined,[31] including programs of non-formal, adult education for EA participants. As part of the review, descriptive memos were prepared for each jurisdiction and later synthesized into a longer, evaluative document. The synthesis included a description of the common elements from the public involvement and non-formal education systems and an attempt to apply the case selection criteria.

To assist in applying case selection criterion (1), a preliminary assessment of the EA processes was completed, using criteria derived from critical education (Table A.1, below).[32] This analysis turned out to be a false start but for the sake of completeness is reported here. The assessment began as an attempt to apply the criteria comprehensively to each of the EA processes. Table A.2, page 177, summarizes application of the criteria to non-formal, adult education in the British Columbia process. A similar analysis was done with respect to the federal legislation, but after realizing that comprehensive application of the criteria was not particularly fruitful, a more selective approach was used in applying the most relevant criteria.

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[31] The examination was limited to provincial and federal jurisdictions because the EA processes of Nunavut and Yukon had not been promulgated at the time of the document review, and in subsequent stages of the research, interview data were not obtained regarding the Northwest Territories.

[32] My interest in critical education stems from my Master's research and my professional background as an adult education practitioner in the non-governmental sector. My work experience included a focus on empowerment of traditionally disadvantaged citizens and reform of dominant political and legal institutions. I brought these interests to my doctoral research and, hence, my initial approach to examining non-formal education by government EA agencies relied on critical education constructs.

Table A.1: Critical Education Criteria and Associated Operational Definitions

CRITERIA	CONCEPTUAL DEFINITIONS	OPERATIONAL DEFINITIONS
Participatory	Participants are involved in making their own education	Did learners help design the materials? Are the learning events participatory? Did the learners help set the agenda?
Multicultural	Cultural diversity of society is recognized and accepted	Are multicultural examples used? Are interpretation and translation used? Is there culturally specific programming?
Situated	The subject is situated in participant thought and language	Are plain language principles used? Are issues grounded in learner realities?
Critical	Discussion encourages self- and social- reflection	Are there unlinked activities? Learners have an opportunity to critique what they learned Opportunity to question power relations and dominant, pro-development paradigms
Democratic	Discourse is constructed by both the facilitator and the participants	Is there equitable treatment among the publics?
Dialogical	The basic format is based on dialogue around problems posed in the learning forum	Does the format rely on problem solving? Does the government promote contact with officials regarding problems?
Desocializational	Participants are desocialized from passivity	Encourage action vs. passivity (registry, notice) Encouraged to create own future Promote political activism
Research oriented	The facilitator researches learner realities (e.g., speech, behaviour), while learners research problems posed in class	Does the government investigate the learners and tailor materials and learning events to their specific needs?
Activist	The classroom is active and interactive	Interactive learning opportunities Does the government promote EA?
Affective	The dialogue favours broad development of human feeling	
Reliant on praxis	The process relies on the action-reflection-learning cycle	

Table A.2: Application of the Critical Education Criteria to British Columbia

CRITERIA	OPERATIONAL DEFINITIONS	EVIDENCE IN THE DATA
Participatory	Did learners help design the materials? Are the learning events participatory? Did the learners help set the agenda?	See the activist criteria.
Multicultural	Are multicultural examples used? Are interpretation / translation used? Is there culturally specific programming?	Throughout the Act, policies, and guidance documents, emphasis is placed on First Nations, e.g., the special appendix on involvement of First Nations.
Situated	Are plain language principles used? Are issues grounded in learner realities?	Government may form a public advisory committee to make recommendations on matters of public concern and may assist the public in understanding the process and the project. Above average use of plain language.
Critical	Are there unlinked activities? Learners have an opportunity to critique what they learned Opportunity to question power relations & dominant, pro-development paradigms	They have considerable passive unlinked activities (e.g., a variety of publications, their web site). Time periods play an important part in the process and could work against taking time for critical reflection.
Democratic	Is there equitable treatment among the publics?	The government's review of the proponent's public involvement plan may specify further measures to ensure adequate distribution of information, including advertisement, public consultation, direct mailing, etc.
Dialogical	Does the format rely on problem solving? Does the government promote contact with officials regarding problems?	See the activist criteria.
Desocializational	Encourage action vs. passivity (registry, notice) Encouraged to create own future Promote political activism	See activist criteria regarding proactive techniques and collaboration to resolve outstanding problems. Guidance documents refer to public involvement in the purposes of the Act, the decision-making process, at each stage of the review, and in a special section on how to become involved, which encourages involvement and use of the funding program.
Research oriented	Does the government investigate the learners and tailor materials and learning events to their specific needs?	At the preapplication stage, preliminary contacts should be made by the proponent and initial consultations held, including meeting key publics and scoping of concerns. The stated benefits of involvement include learning-related benefits on the part of proponents and the public.
Activist	Interactive learning opportunities Does the government promote EA?	The web site includes a detailed government directory with a search function and opportunities for feedback. Proponents are encouraged to use proactive consultation techniques. Early in the application review process, the proponent should consult. Consultation at the project report review stage is focused on two-way dialogue and on collaborative opportunities intended to resolve outstanding issues. The goals and principles of public involvement in the EA process specifically recognize both information-out and information-in.
Affective		
Reliant on praxis		

Ultimately, the critical assessment was abandoned after I recognized that it was not an insightful line of inquiry to apply critical constructs to the implementation of government policy. I was setting up a "straw man" for failure by applying inappropriate or irrelevant criteria. In addition, since the criteria were derived from descriptors of individual pedagogical events, they could not be operationalized logically at extensive or process-levels of analysis. This difficulty is reflected in the lack of operational definitions for the criteria of affective and reliant on praxis. It is also apparent in the repetitiveness of the evidence regarding several of the criteria (see participatory, dialogical, and activist in Table A.2). Nevertheless, the assessment yielded tentative results that could be used in subsequent research focusing on education methods.

To assist in applying case selection criterion (2), a rudimentary ordinal classification of the EA processes was developed based on the degree to which the public involvement components of the processes approximated the ideal conditions of learning. The ranking, presented in Table A.3, was not developed fully because its usefulness was doubtful given the tremendous discretion that exists in implementing EA processes in individual cases. The ranking was, therefore, another false start, although it proved to be useful in case selection, and evolved ultimately into the extensive assessment of Chapter 4.

Table A.3: Preliminary Ordinal Classification of 11 Canadian EA Processes

RANKING	JURISDICTION
(1)	British Columbia, Canada
(2)	Alberta, Québec
(3)	Manitoba, New Brunswick, Nova Scotia, Ontario
(4)	Newfoundland, Prince Edward Island, Saskatchewan

Appendix 5: Initial sampling frame of cases

When the document review and analysis referred to in the previous Appendix were underway, interviews with government EA officials were initiated. The interviews yielded data that supplemented the document review and enriched the analysis, including application of the case selection criteria. One of the interview questions sought suggestions for potential case studies. Based on these suggestions and ideas offered by thesis committee members, a preliminary sampling frame of cases was prepared (Table A.4). However, before the sampling frame was completed and the criteria applied systematically to each of the cases, as discussed in Section 3.2.5.3, I turned my attention to the Maple Leaf and SAR cases.

Table A.4: Preliminary Sampling Frame of Cases

JURISDICTION	CASE
Canada	Huckleberry Gold Mine
	Chalk River Waste Treatment Upgrade
	Alliance Pipeline
	Red Hill Creek Expressway
Manitoba	BFI Residential Landfill
	Pembina Valley Water Supply System
	Louisiana Pacific Swan River Pulp and Paper Mill
Saskatchewan	Nor-Sask 20 Year Forest Management Plan
	SaskFor-Macmillan
	Hazardous Waste Proposal
Prince Edward Island	Cavendish Farms French Fry Plant
Alberta	Suncor Steep Bank 1997
	Cheviot Mines
	Cold Lake cases

Appendix 6: Interview schedule for the extensive phase

FURTHER DOCUMENTS

1) We used the documents in Appendix A to familiarize ourselves with public involvement in EA in Manitoba. Are there important documents that we missed that are crucial to giving us a full understanding of public involvement in EA in Manitoba?

UNLINKED ACTIVITIES

2) The following questions relate to public education and information activities that your department conducts for anyone who is interested in EA in Manitoba. That is, these questions deal with public education and information activities that are not linked to a specific project or proposal.

3) This set of questions deals with document numbers 16 and 17, which are information bulletins on the public involvement and EA processes in Manitoba (incidentally, these are the same documents as numbers 18 and 19).
   a) What was the department's motivation in producing the bulletins? In other words, why did you produce them?
   b) Can you provide us with background on how the bulletins were prepared (prompt if necessary regarding in-house work, consultation with stakeholders - who and how, revisions)?
   c) Are they available in other languages?
      i) If yes, which languages?
      ii) If not, why not?
   d) What has been the public/proponent response to these materials?
   e) Does the department have an information bulletin on the participant assistance regulation?
      i) If so, why did you produce it?
      ii) If not, why not?

4) The next two questions deal with your web site (documents from your web site that we reviewed include numbers 3, 4, 5 and 6).
   a) Do you have records of how many hits you get on your web site?
   b) We noticed that the EA legislation is not available on the web site. Why is this?

5) The next question deals with document number 22, which is the Clean Environment Commission's participants' guide for public hearings. The section on participation on page 2 of the guide indicates that the CEC believes that citizen organization at the grass roots level is an effective way for people to become involved in EA. Do you?
   a) If not, why not?
   b) If so, what do you do to encourage it?

6) Other than the bulletins, the web site and the CEC guide, do you conduct any other education activities for the general public that are not linked to a specific case, such as workshops, or conferences?
   a) If not, why not?
   b) If so:
      i) What types of activities do you undertake?
      ii) Why are they initiated?
      iii) Who are these activities directed to (i.e., proponent/public)?
      iv) How many sessions have there been in the past year?
      v) How big would the sessions normally be and who usually attends?
      vi) How do you solicit participants for the sessions?

vii) For each type of activity noted, who usually facilitates the sessions?

7) Have you acted as facilitator or presenter at any of these workshops or conference presentations?
   a) If no,
      i) Can you provide us with the names and contact numbers of the usual facilitators?
      ii) Can you provide us with lists of recent participants?
   b) If yes,
      i) What were the overall objectives of the session? (Do objectives vary by session type?)
      ii) How were the objectives determined?
      iii) What support materials were used?
      iv) Who designed the materials?
      v) What was the format of the session (talking heads, seminar, workshop, etc.)?
      vi) Were participants given the opportunity to think critically about past cases?
      vii) How are they encouraged to become involved in future EA cases?
      viii) Can you provide us with lists of recent participants?

8) Are there common, less formal, activities that are used by your department that provide public education or information (phone, web chat lines)?
   a) If so:
      i) What types of activities are most common?
      ii) Who normally carries out these activities?
      iii) Is it common for the public to utilize these opportunities outside of a case situation?

LINKED ACTIVITIES

9) The following questions relate to public education and information activities that your department conducts once a proposal is submitted or a project is otherwise initiated. That is, these questions deal with education and information activities that are linked to a specific case.

10) Does your department conduct any public education and information activities at the presubmission stage of the process?
   a) If not, why not?
   b) If so:
      i) Why?
      ii) Who are these activities directed to (i.e., proponent/public)?
      iii) How many sessions have there been in the past year?
      iv) How big would the sessions normally be and who usually attends?
      v) How do you solicit participants for the sessions?
   c) Have you acted as facilitator or presenter at any of these workshops or conference presentations?
      i) If no,
         (1) Can you provide us with the names and contact numbers of the usual facilitators?
         (2) Can you provide us with lists of recent participants?
      ii) If yes,
         (1) What were the objectives of the session?
         (2) How were the objectives determined?
         (3) What support materials were used?
         (4) Who designed the materials?
         (5) What was the format of the session (talking heads, seminar, workshop, etc.)?
         (6) Was two-way communication and discussion encouraged at these events? How?
         (7) Were participants given the opportunity to think critically about past cases?
         (8) How are they encouraged to become involved in future EA cases?
         (9) Can you provide us with lists of recent participants?

11) Once a project proponent submits a proposal formally, your department files a summary of the proposal in the registry and notifies the public through advertisements. It then provides the public with an opportunity

to submit written comments. Does your department conduct any other public education and information activities once the notice of proposal has been given, such as open houses or presentations?

a) If not, why not?
b) If so: (Follow-up with questions as above, if necessary.)

12) Upon screening of the proposal, your department may provide guidelines to the proponent for the provision of an EIS or other information. Other than the steps to provide access to information (such as filing the guidelines in the registry and advertising this in the media. Does your department conduct any other public education and information activities at this stage of the process, such as open houses or presentations?
    a) If not, why not?
    b) If so: (Follow-up with questions as above, if necessary.)

13) Does your department conduct any specific activities to assist the proponent to prepare their EIS? (Prompt with TAC example, if necessary.)
    a) If not, why not?
    b) If so:
        i) Why?
        ii) What sorts of activities are normally undertaken?
        iii) How were they designed?
        iv) What has been the response of proponents?

14) Your department may require project proponents to carry out public consultations during the preparation of the EIS.
    a) Does your department become involved in such consultations? (i.e. Do you help to establish a consultation framework?)
    b) Does your department conduct any public education and information activities in conjunction with the EIS preparation consultations (again, such as open houses or presentations)?
        i) If not, why not?
        ii) If so: (Follow-up with questions as above, if necessary.)
        iii) Is the proponent encouraged to use non-technical language or to explain the technical language used in the EIS

15) We referred earlier to the CEC's participants' guide for public hearings. This guide provides a number of tips to help members of the public become involved in the hearings.
    a) Does your department conduct any public education and information activities (such as training programs or workshops) to help members of the public understand and become more involved in hearings?
        i) If not, why not?
        ii) If so: (Follow-up with questions as above, if necessary.)
        iii) Intervenors are encouraged to submit briefs or make oral presentations. Do you provide any guidelines, direction or encouragement to the public to facilitate these written submissions; e.g., do you provide them with any examples?

16) Considerable onus is placed on the project proponent to initiate a program of public involvement. Does your department assist them with this task?
    a) If not, why not?
    b) If so:
        i) What sorts of assistance are provided?
        ii) What is the usual approach to developing PI activities?

17) What happens to the information provided by the public at consultation sessions and hearings?
    a) How do your department and the proponent use it?
    b) Is the current process adequately incorporating the public's concerns/issues in the final EIS and decision?

18) Is the public shown how its input at consultation sessions and hearings is used? That is, can members of the public learn from their experiences to participate more effectively in the future or to help others participate?

19) Does your department attempt to learn from public submissions? That is, have such submissions ever effected project design or the EA process in the province? If so, what are some recent examples?

GENERAL

20) To conclude, please try to answer the following questions, which are of a more general nature.

21) In what ways has your department attempted to "promote" EA with the public and proponents (prompt with waste reduction examples, if necessary)?

22) Would you please identify recent EA cases you consider as being exemplary in regard to public involvement?
   a) And, please identify those you consider as being poor examples in regard to public involvement.

23) Would you please identify recent public education and information activities (such as workshops, seminars, etc.) conducted by your department with respect to EA in Manitoba you consider as being exemplary?

24) Is there a "typical" profile of a participant in EA cases in your province?
   a) First, with respect to public hearings.
   b) Next, at the prehearing stage or where there wasn't a hearing.
   c) Has your department produced any public education and information materials specifically for these groups?

25) Has your department considered why people may choose not to participate in EA cases?
   a) If so, what do you think the reasons for not participating might be?
   b) Has there been any attempt to attract new participants or appeal to a broader spectrum of "stakeholders"?

26) Could you please identify some non-government organizations (including proponents) that have experience with the EA process in Manitoba, i.e., "regular" participants?

27) Which jurisdiction have you, or would you, look to for assistance with your public involvement program if it was required?

Appendix 7: Interview schedule for the intensive phase

NONFORMAL EDUCATION

1) Who is doing the teaching?
   a) How was the organization formed?
      i) When?
      ii) By whom?
      iii) Why?
   b) What is its structure?
   c) What is its mandate?
   d) What are some examples of its activities?

2) How was it taught?
   a) Did the organization conduct any education or information activities with respect to the Maple Leaf case?
   b) For example, did you create any materials or facilitate any workshops on the EA process?

3) What education and information methods were used?
   a) Workshops?
   b) Guidance materials?
   c) Media relations?
   d) Open houses, brief preparation, etc.
   e) Is there a recent exemplary activity?
   f) Do you have anything coming up that I can attend?
   g) How do you go about designing these activities?

4) What is being taught?
   a) What were the major lessons the organization was trying to impart?
   b) For whom were the activities intended or who were you trying to reach?
   c) Were you trying to involve your constituents or the broader community in the ML process?

5) Why is it taught?
   a) What were the main motivations for undertaking the education and information activities?

THE CONDITIONS OF LEARNING

6) How would you assess the accuracy and completeness of the information you received from the government throughout the ML case?
   a) Was the public registry accessible?
   b) Was there adequate public notice?
   c) Was the web site accessible and informative?
   d) Were the project documents user friendly and in summary form?
   e) Were the primary legislation and the terms of reference for the project readily available?

7) Did you feel undue pressure from the proponent or MB Environment during the process?

8) Openness to alternative perspectives
   a) Did the EA process address need for, purposes of, and alternatives to the proposed development?
   b) Was MB Environment open to making improvements to the process as the case proceeded?
      i) If so, examples?

c) Did the assessment deal with normative (what should be done) questions?

9) Opportunity to critically reflect upon presuppositions
   a) Were you shown how your input was used in the decision-making process?
   b) Were there opportunities for interactive education and learning during the case?

10) Equal opportunity to participate
   a) Were there opportunities for involvement throughout the process?
   b) Was there a participant funding program?
   c) Was there an "affected public" bias?
   d) What are your views of the City of Brandon public meetings?
   e) Was there two way dialogue at the meetings?
   f) What other types of engagement techniques do you think the government should have used?
   g) Do you feel there was more government support for some parties than for others?

11) Opportunity to assess arguments in a systematic fashion Was there an "impartial" decision-maker?
   a) Does transparency exist in decision-making processes?
   b) Do systems exist for the integration of public submissions?

THE LEARNING EXPERIENCES

12) Who are the learners?
   a) Ask for background information.
   b) How would you describe the level of awareness of the Maple Leaf case in your community?

13) What did they learn?
   a) What was the single most important thing you learned from your involvement in the ML case?
   b) What types of things did you learn from your involvement?
   c) What was the single most important thing you learned at the public meetings/workshops held by the City of Brandon/Maple Leaf/WCAC?
   d) What types of things did you learn there?

14) How did they learn it?
   a) What is your overall reaction to the event you attended?
   b) What was the most satisfying part of the event?
   c) What was the least satisfying?
   d) Did you have an opportunity to question the positions offered by the proponents?
   e) Since the event, have you have an opportunity to reflect upon what you learned?
   f) Have you used what you learned in other areas of your life?

15) Why did they learn it?
   a) What was your motivation for attending the City of Brandon/Maple Leaf/WCAC event?
   b) Did you attend with a specific question or problem in mind?

THE NATURE OF THE INVOLVEMENT

16) How were they involved?
   a) What exactly was your role in the ML case?
   b) How did you participate?
   c) Why were they involved?

17) What was your motivation for becoming involved in the ML case?
   a) Did the City of Brandon/Maple Leaf/WCAC meeting/workshop that you attended have any effects on your later involvement in the ML case?
      i) Why did it affect you in this way?
   b) Did it have any effects on your involvement in any other community development issues?

i) How and why?

c) Does any other event (such as a TV program or conversation with a friend or anything) stand out as having affected your involvement in the ML case?
   i) Why did this event affect you in this way?

18) What were the outcomes of their involvement?
   a) Do you think you influenced decisions made during the course of the assessment?
      i) Why do you think this?
   b) Has your involvement in the Ml case influenced your involvement in any other community development matters?
      i) How and why?

General

19) Do you know of any other community organizations that made efforts to involve the community in the ML case?

20) Have you ever considered why people may choose not to participate in EA cases such as the ML development?
   a) If so, what are your thoughts?

21) What do you think of the whole notion of community education as a vehicle to facilitate involvement in EA cases such as the ML development?

Appendix 8: Interview recruitment protocol

The interview recruitment protocol included a telephone call to introduce the research project and myself, and to schedule the date and time for an interview. A letter was then sent to provide further details of the research and confirm the interview appointment. The letter indicated that selected participants might be recontacted later in the research. Two copies of a consent form accompanied the letter and participants were asked to sign both copies of the form and mail or fax one copy to me prior to the interview. The telephone script, confirmation letter, and consent form for the intensive phase are included as Appendices 9-11.

Appendix 9: Telephone script

Telephone Script: Phase 2

Hello, my name is Alan Diduck and I am a PhD student in Geography at the University of Waterloo. I am doing research on public involvement in environmental assessment and I am studying the new Maple Leaf hog plant. My particular focus is community education as a tool to facilitate participation. I am also interested in what people learn when they participate.

I read your letter in the public registry and know you were very involved in the case so.....
OR
I read your interview in the paper and know you hold strong views on the plant so..... OR
I know that you were actively involved with <insert group> and..... OR
A similar lead in tailored for that prospective participant.....

.....I was wondering if I could meet with you to ask a few questions about the case. I am particularly interested in your views on <insert event> held by the <insert sponsor> and similar community events that you may know about. It shouldn't take longer than 45 minutes and everything you say will be treated as confidential. I won't use your name and will take care when I am writing so that you aren't identified through the context of what you say. Also, I should let you know that my research has received ethics clearance through the office of Research Ethics at the University of Waterloo.

I am available on <insert dates and times>. Thank you very much. I really appreciate this. I will see you on the <insert date> but before that I will send you a letter to provide further details of my research and confirm what we have discussed. Thanks again. Goodbye.

Appendix 10: Confirmation letter

<insert date>

<insert participant name>, <insert participant title>
<insert participant office>
<insert participant address>
<insert participant city>, <insert participant province>
<insert participant postal code>

Dear <insert participant name>,

Thank you for agreeing to participate in this research project. As I mentioned on the telephone, the purpose of the research is to explore connections among non-formal, adult education, learning and public involvement in environmental assessment (EA). Through my research, I want to understand what governments and environmental non-governmental organizations are doing by way of non-formal education for EA participants. I want to learn if non-formal, adult education can be used to facilitate public involvement in EA. I also want to know what people learn from participating in EA and what their experiences mean for EA reform and the pursuit of sustainability. Among other things, I hope the research will have practical implications for the redesign of EA process in Canada.

As we discussed on the phone, I will come to your office for an interview on <insert interview date> at <insert interview time>. The purpose of the interview, which should last for approximately 45 minutes, is to obtain a more complete understanding of your participation in the Maple Leaf case. One of my specific areas of interest is public information and education that was provided to facilitate public involvement.

Our meeting is part of an initial round of interviews I am doing in the Maple Leaf case. If further questions come to mind later in the research, I hope you do not mind if I contact you for a further brief interview. However, please be advised that your participation in our upcoming interview on <insert interview date> does not obligate you to participate in future interviews. You will be asked for a separate consent at that time.

There are no known or anticipated risks to your participation in this study. In addition, your participation is entirely voluntary and although my questions in the upcoming interview will be quite general (e.g., what types of community education did your organization conduct during the Maple Leaf environmental assessment) you may decline answering any questions you do not wish to answer.

All information you provide will be considered confidential. Further, you will not be identified by name in my thesis or in any report or publication resulting from this study. If you do not mind, I would like to audio tape the interview for the sake of accuracy. Interview tapes and notes will then be transcribed and entered onto my computer hard disk. Backup copies of the data will be stored on floppy and zip disks. The original tapes and notes,

computer hard disk and backup disks will be stored in my home office and will be inaccessible to anyone other than members of my thesis committee and myself. Raw data will be destroyed when they are no longer required, likely upon completion of my thesis and any subsequent publications based on the thesis.

I have enclosed two copies of a consent form for your participation in the interview. Please sign both copies of the form and mail or fax one copy to me at the address noted on the form. The second copy is for your records.

This research is being conducted for my doctoral dissertation through the Department of Geography under the supervision of Dr. Bruce Mitchell. It is supported by the Social Sciences and Humanities Research Council of Canada. The research has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo.

If you have any questions about your upcoming interview, please do not hesitate to contact me at (204) 477-1529. If you have concerns resulting from your participation in this study, please do not hesitate to contact either Dr. Mitchell at (519) 888-4567 Ext. 3087 or the ethics office at (519) 888-4567 Ext. 6005.

Thank you for your assistance with this project.

Yours sincerely,

Alan Diduck, LLB, MNRM
PhD Candidate in Geography

Appendix 11: Consent form

I agree to participate in an interview being conducted by Alan Diduck of the Department of Geography under the supervision of Dr. Bruce Mitchell. I have made this decision based on the information I have received in the attached letter and have had the opportunity to receive any additional details I wanted about the study. As a participant in this study, I realize that I will be asked to take part in an interview of approximately 45 minutes and that I may decline answering any of the questions, if I so choose. In addition, I understand that I may be requested to participate in a further interview later in the research. All information that I provide will be held in confidence and I will not be identified in the thesis, report or publication. I understand that I may withdraw this consent at any time by asking that the interview be stopped. I also understand that this project has been reviewed by and received ethics clearance through the Office of Research Ethics at the University Waterloo and that I may contact this office if I have any concerns or questions about my participation in this study.

Participant's Name: _____

Participant's Signature: _____

Name of Witness: _____

Signature of Witness: _____

Date: _____

Please sign both copies of this form and mail or fax one copy to me at the address noted below. The second copy is for your records.

Alan Diduck
54 Sandra Bay
Winnipeg, Manitoba
Canada
R3T 0K1
Phone and fax: (204) 477-1529
E-mail: apdiduck@fes.uwaterloo.ca

Appendix 12: Recording the data

More than half of the interviews were tape-recorded to ensure that everything said was preserved for analysis. This not only preserved the data, but it allowed me to reflect upon the interviews and make necessary adjustments to improve my technique. Shortly after the interviews, verbatim transcriptions were made and used to construct the initial database of the interview information. I also frequently supplemented the tape recordings with written notes during the interview sessions. I used these notes to record my own reactions to participant responses and to help pace the interviews. In addition, I often made post-interview notes to document my reflections regarding the interviews and to make descriptive notes on the physical reactions of the participants to the questions. The post-interview notes were also used to improve my interview technique and to begin the process of data analysis.

In those interviews not taped, participant comments were recorded with contemporaneous and post-interview handwritten notes. Most of these interviews involved government officials, with whom it was thought that the advantages gained from taping were out-weighed by the loss of candor and spontaneity that could result from tape-recording. To increase accuracy in recording these interviews, which were done during the extensive phase of the research, two interviewers were present, one of whom made notes while the other conducted the interview.

Appendix 13: Data management

To assist with management of the document data, I prepared two databases using bibliographic software for the Macintosh OS platform, EndNote 4.0 (ISI 2000). One database was devoted to the extensive phase of the study, while the other was devoted to the intensive phase. The databases provided powerful sort and search functions on all data fields including author, publisher, title, record type, and key word. They also integrated easily with word processing files, which facilitated reporting of results.

To assist with the management of the interview and observation data, I prepared a set of databases using QSR N4 (QSR 1998), qualitative data analysis software for Macintosh OS. This software was essential to data analysis (Section 3.5), but it was also helpful in basic data management. Since the N4 databases stored my interview transcripts and observation notes, the cross-indexing and searching capabilities of the application were very useful in organizing, filing, and sorting the data.

Appendix 14: Observation checklist

The physical setting
- ❑ What is the physical environment like?
- ❑ What is the context?
- ❑ What kinds of behavior is the setting designed for?
- ❑ How is space allocated?
- ❑ What objects, resources, technologies are in the setting?
- ❑ Draw a diagram of the setting.
- ❑ Trace movements through it, if necessary

The participants
- ❑ Who is at the scene? How many people and what are their roles?
- ❑ What sectors are they from?
- ❑ What brings these people together?
- ❑ Who is allowed here?
- ❑ Who is not here and who is expected to be here?
- ❑ What are the relevant characteristics of the participants?

Activities and interactions
- ❑ What is going on?
- ❑ Is there a definable sequence of activities?
- ❑ How do the people interact with the activity and one another?
- ❑ What norms or rules structure the activities and interactions?
- ❑ When did the activity begin?
- ❑ How long does it last?
- ❑ Is it a typical activity, or unusual?

Conversation
- ❑ What is the content of conversations in this setting?
- ❑ Who speaks to whom?
- ❑ Who listens?
- ❑ Quote or summarize conversations.
- ❑ Note silences or nonverbal behavior that add meaning to the exchange.
- ❑ Look for key words in people's remarks that will stand out later
- ❑ Concentrate on the first and last remarks in each conversation
- ❑ Focus on substance rather than verbatim reproduction

Subtle factors
- ❑ Informal and unplanned activities
- ❑ Symbolic and connotative meanings of words
- ❑ Nonverbal communication such as dress and physical space
- ❑ What does not happen, especially if it ought to have happened?

My own behavior
- ❑ How is my role affecting the scene?
- ❑ What do I say or do?
- ❑ Trace movements through the physical setting, if necessary
- ❑ What are my thoughts about what is going on?
- ❑ Observer comments: feelings, reactions, hunches, initial interpretations, working hypotheses
- ❑ How does the mix of participation and observation change throughout the event?

Appendix 15: Example of brief analytic notes

Q.S.R. NUD*IST Power version, revision 4.0.Licensee: Alan Diduck.

PROJECT: NUDIST thesis project, User Alan, 2:47 pm, Dec 22, 2000.

Node (12 3) /LEARNING CONDITIONS (THE PROCESS)/openness to alternative perspectives
*** Definition: Etic. Put any data here regarding this particular ideal condition of learning.
*** Created: 8:57 pm, Jan 12, 2000.
*** Last modified: 5:43 pm, Sept 26, 2000.

The siblings of this node are:
(12 1) /LEARNING CONDITIONS (THE PROCESS)/accurate and complete information
(12 2) /LEARNING CONDITIONS (THE PROCESS)/freedom from coercion
(12 4) /LEARNING CONDITIONS (THE PROCESS)/opportunity to critical reflect upon presuppo
(12 5) /LEARNING CONDITIONS (THE PROCESS)/equal opportunity to participate
(12 6) /LEARNING CONDITIONS (THE PROCESS)/oppor to have argu eval in a syst fashion

The children of this node are:
(12 3 1) /LEARNING CONDITIONS (THE PROCESS)/openness to alternative perspectives/social learning
(12 3 2) /LEARNING CONDITIONS (THE PROCESS)/openness to alternative perspectives/staging

Documents coded by this node are:
1: Alfie 2: Bart 3: Bernard 4: David I 5: Edward 6: Harold 2 7: Jane 8: Markus 9: Michael
This is 9 documents out of 55, = 16%

Memo:
5:40 pm, Jan 13, 2000.
Some of the rather considerable data from Bart that I coded here might not be relevant to this node or in fact to any of the nodes. Watch for this. If it is extraneous, delete it.
12:06 pm, Jan 14, 2000.
I need to code the data here with a finer tooth comb. Two possible new nodes, both derived from the data, are Bart's "strategic assessment" stuff and Alfie's "holistic" approach.
11:46 am, Jan 18, 2000.
Some of the data here might be relevant to freedom from coercion. But I might have to develop a new indicator for freedom from coercion in addition to primary responsibility.
3:58 pm, Jan 18, 2000.
Perhaps, this node needs a new sub node for scope, or alternatives, needs, normative opportunities, etc. Basically, see the operational indicators from the ideal conditions of learning paper.

Appendix 16: Letter of appreciation

<insert date>

<insert participant name>, <insert participant title>
<insert participant office>
<insert participant address>
<insert participant city>, <insert participant province>
<insert participant postal code>

Dear <insert participant name>,

I am writing to express my gratitude for your participation in our recent interview. I appreciate the many demands made on your time so I am truly grateful for the opportunity to have met with you.

As we discussed, my research project examines linkages among non-formal, adult education, learning and public involvement in environmental assessment (EA). My hope is that the research will not only improve our understanding in these areas, but also affect EA practice by improving effectiveness, efficiency and fairness in the public involvement components of EA processes. I expect to complete the study in late 2000 and I will provide you with an executive summary of the research at that time. However, if you have any questions regarding the progress of the research in the meantime, please do not hesitate to contact me at (204) 477-1529.

As we discussed, my research is being conducted for my doctoral dissertation through the Department of Geography under the supervision of Dr. Bruce Mitchell. It is supported by the Social Sciences and Humanities Research Council of Canada. The research has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. If you have concerns resulting from your participation in this study, please do not hesitate to contact either Dr. Mitchell at (519) 888-4567 Ext. 3087 or the ethics office at (519) 888-4567 Ext. 6005.

Once again, thank you for your assistance with this project.

Yours sincerely,

Alan Diduck, LLB, MNRM
PhD Candidate in Geography

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