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CIVIC CAPACITY AND INTEGRATIVE PUBLIC LEADERSHIP: A CASE STUDY  
OF THE NEBRASKA WATER LEADERS ACADEMY

by

JoLeisa S. Cramer

A THESIS

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CIVIC CAPACITY AND INTEGRATIVE PUBLIC LEADERSHIP: A CASE STUDY  
OF THE NEBRASKA WATER LEADERS ACADEMY

JoLeisa S. Cramer, M.S.

University of Nebraska, 2015

Adviser: Mark E. Burbach

This study explored the impact of the Nebraska Water Leaders Academy (NWLA) on natural resource management by investigating a link between civic capacity and integrative public leadership in the context of adaptive governance. This mixed mode case study utilized a comprehensive, quantitative on-line questionnaire on civic capacity and integrative public leadership as well as qualitative interviews completed by NWLA alumni. The study included 31 questionnaire responses from NWLA alumni, 53 alumni-chosen rater responses, and 21 interviews.

NWLA alumni were found to frequently employ their civic capacity and integrative public leadership skills to promote and improve collaborative natural resource management. There was a statistically significant correlation between civic capacity and two elements of integrative public leadership resources – integrative leadership resources and integrative structures and processes from both the alumni and raters' perspectives. Thirteen individual themes emerged from the case study of the NWLA that provide insight into how alumni are conducting integrative public leadership. This study establishes a baseline for the link between leadership and natural resources management.

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## Chapter 1-Introduction

### Background

This study explored the impact of the Nebraska Water Leaders Academy (NWLA) on natural resource management by investigating a link between civic capacity and integrative public leadership in the context of adaptive governance. Adaptive governance combines adaptive management of natural resources, which focuses on decision-making through hypothesis-tested field experiments with a framework for analyzing the evolution of institutions for the management of shared assets, such as natural capital and common pool public resources (Folke et al., 2011). Civic capacity is “the combination of interest and motivation to be engaged in public service and the ability to foster collaborations through the use of one's social connections and through the pragmatic use of processes and structures” (Sun & Anderson, 2012, p. 317). Integrative public leadership are abilities and behaviors involved in guiding multi-sector collaborations (Crosby & Bryson, 2010; Morse, 2010; Silvia & McGuire, 2010).

This exploration led to a deeper understanding of the effect of leadership development programs as applied to natural resource management. This mixed mode case study of civic capacity and integrative public leadership utilized a comprehensive, on-line questionnaire as well as interviews completed with NWLA alumni. The NWLA is a one-year program that identifies community leaders and educates them about water issues and research-based leadership skills. The program prepares participants to take active, cooperative approaches to decision making about water resources issues. The goal of this thesis was to assess the civic capacity (i.e. leadership involvement and collaboration in civic projects) and integrative public leadership of program alumni at the community

level to gain a deeper understanding of alumni leadership experiences. This study included interviews with multiple alumni of the NWLA and the distribution of an on-line questionnaire to all alumni of the NWLA.

By collecting and analyzing civic capacity and leadership information from each alumni class, program directors and leadership have the opportunity to modify the NWLA accordingly to extend leadership beyond the individual level and increase the impact of the program. This study also provides insight into the links between leadership development programs and the popular natural resources management method of adaptive governance.

Although there have been studies on the effect of leadership development programs at the individual level, there is a lack of research on the effect of leadership development programs at the overall community levels (Black & Earnest, 2009). There is also a lack of research on how leadership development programs influence the natural resources field. Nationwide, thousands of leadership programs exist and there are millions of businesses to benefit from these programs. Many of these leadership development programs have focused on business advancement, but few incorporate a natural resource focus. In Nebraska, the only two programs with both an environmental and a leadership focus are the Nebraska Sustainability Leadership Workshop and the NWLA, both partially funded through the Nebraska Environmental Trust. Furthermore, Burbach, Floress, and Kaufman (2015) found that few water-related leadership development programs assess learning outcomes.

The leadership skills that were once only appropriate to top business executives are now necessities to many as the complex environmental problems and the

continuously changing solutions to these environmental issues require more leadership skills from everyone involved (Gordon & Berry, 2006, p. 83).

This mixed mode case study of the NWLA provides a backdrop for a rich inquiry to gain insight into linking leadership and adaptive governance.

### **Statement of the Problem**

Leadership programs at the community level have been underrepresented in the literature. Leadership is a human activity we participate in every day. A study on the Kansas Leadership Center highlights the importance of leadership beyond the individual level, “Solving any community’s most critical problems will require new ways of thinking, discussing, and doing” (Easterling, 2012, p. 55). Effective leadership assists the nation in law making, enables non-profits to fulfill mission statements and builds successful business organizations. Without leadership a meeting or brainstorming session may quickly deteriorate into argument and conflict because each individual perspective presents different solutions. Leadership helps to point individuals in the same direction and harness their efforts jointly (Mills, 2005).

Leadership programs are vital to success because organizations take on the personality of their leaders. (Mills, 2005) Leadership training and development can maximize productivity and shape a positive culture within the organization. Analysis by The Ken Blanchard Companies (2009) shows that the average organization is forfeiting over \$1 million per year in untapped potential because of less-than-optimal leadership practices. A study from a large financial services firm that involved 300 managers and 1,200 direct reports showed that the organization achieved a 5%-12% increase in

productivity among direct reports of managers who attended the leadership development training and became better leaders (Leone, 2008).

Leadership is underrepresented within natural resource management across the country. Adaptive management is an approach to managing natural resources in the face of uncertainty that encourages learning from the implementation of policies and strategies (Allan & Curtis, 2005). The adaptive management process is at the forefront of management methods for the natural resources field. “Successful implementation will require new ways of thinking about management, new organizational structures and new implementation processes and tools” (Allan, Curtis, Stankey, & Shindler, 2008, p. 166). For resource management to be successful adaptive management programs must be socially acceptable in addition to their economic feasibility and bio-physical possibility (Allan et al., 2008). Although adaptive management “mimics” the scientific method, it stands in sharp contrast to traditional scientific inquiry due to its emphasis on learning from the management practice (Hillman et al., 2000).

Adaptive management is not a typical management process and it should not be seen as an excuse to stumble through a management problem due to its flexible design. Grint (2005) suggests that leaders create the conditions for managers by defining the context in which appropriate management actions can occur. There is a role for effective leadership to create the institutional conditions that will enable and encourage experimental and reflective management. Adaptive management needs champions who have (or who have been given) the time, resources, capacities and power to influence the ways in which policy is devised and its tools are implemented (Allan et al., 2008).

Adaptive management lacks the incorporation of a social element, which greatly influences the overall process. Adaptive governance, in contrast, is much more than stakeholder participation and integrated planning in adaptive management. Adaptive governance implies being able to deal with both uncertainty and abrupt change; enhanced learning of complex socio-economic systems; promotion of experimentation and innovation; and support of cross-scale institutional linkages (Folke et al., 2011).

### **Purpose Statement**

Specifically, this study investigated the link between civic capacity and integrative public leadership in the context of adaptive governance. The purpose of this study was to investigate the effects of the NWLA on alumni civic capacity and engagement in civic activities and, in turn, the effect of alumni civic capacity on integrative public leadership through the lens of adaptive governance that includes an emphasis on the human/social elements of natural resource management. This exploration led to a deeper understanding of the effect of a leadership development programs as applied to natural resource management. This exploration of leadership within the adaptive governance framework will inform natural resource managers, stakeholders, and policy makers of the importance of incorporating leadership development within the natural resources management practice. Emergent themes from this study yielded findings and results for direct application and further research in the field.

## **Research Question**

### **Overall question**

The overall research question was: What can be learned from an individual's leadership experience in a program aimed at managing water as a public good in the state of Nebraska while simultaneously teaching research-based leadership skills? Guiding questions included the following:

- How does a leadership development program affect an individual's leadership style?
- How do interactions between stakeholders affect the collaborative effort of the adaptive governance process?
- How do leadership development programs affect an individual's leadership involvement in their organization and community as a whole?
- Are there negative themes that could be avoided when linking leadership development programs to adaptive governance?
- Are there positive themes that could be investigated further when linking leadership development programs and adaptive governance?

### **Definition of Terms**

These definitions helped to design the vision through which this research project was written. These terms will be used throughout this inquiry. The following definitions should provide clarity for the reader.

*Adaptive Management:* Adaptive management seeks to improve the understanding of an ecosystem through the integration of science and management (Enck et. al., 2006).

Adaptive management is a true measure of how to meet environmental, social and economic goals through increases in scientific knowledge, and reducing tension among stakeholders.

*Adaptive Governance:* Adaptive governance deals with the evolution of institutions for the management of shared assets, such as natural capital and common pool, public resources. It also promotes the satisfaction of human needs and preferences given changes in understanding, objectives, and the social, economic and environmental context (Hatfield-Dodds, Nelson, & Cook, 2007). Adaptive governance is an advanced form of adaptive management which incorporates the social aspect as part of the overall natural resource management plan.

*Leadership Development Program:* “Leadership development is defined as the expansion of the collective capacity of organizational members to engage effectively in leadership roles and processes” (McCauley, Moxley, & Van Velsor, 1998, p. 2). It enables groups of people to work together, solve problems and use their overt and covert capacities to face challenges (Keys & Wolfe, 1988).

*Transformation Leadership:* Transformational leadership involves motivating others to go beyond what was originally intended and achieve more than was originally thought possible (Avolio, 2011). Transformational leaders inspire colleagues to move beyond the immediate goal, challenge basic assumptions by emphasizing the basic ethical and moral values of all goals and decisions.

*Civic Capacity:* Civic capacity refers to community-level civic engagement, or resolving public issues with the involvement of the community as a whole. Civic capacity

is composed of three elements: civic drive, civic connections and civic pragmatism (Sun & Anderson, 2012).

*Civic Drive:* Civic drive refers to the desire and motivation to be involved with social issues. Integrated public leaders use civic drive to be social capitalist with the ability to see new opportunities for creating public value (Sun & Anderson, 2012).

*Civic Connections:* Civic connections are the network of social and cultural institutions that can be mobilized for joining actions. Civic connections deals specifically with the individual and their internal and external social networks, which promote the success of the collaboration (Sun & Anderson, 2012).

*Civic Pragmatism:* Civic pragmatism is the ability to translate social opportunities, by leveraging structures and mechanisms for collaboration (Sun & Anderson, 2012). Civic pragmatism involves setting up effective structures such as committees where collaboration can take place, and mechanisms for governance and accountability can be established.

*Integrative Public Leadership:* Integrative public leadership involves bringing diverse groups and organizations together in semi-permanent ways, typically across sector boundaries to remedy complex public problems and achieve the common good (Crosby & Bryson, 2010). Integrative public leaders catalyze multi-sector collaboration through the use of integrative thinking, integrative behavior, integrative leadership resource management, and integrative structures and processes (Sun & Anderson, 2012).

*Integrative Thinking:* Integrative thinking involves the cognitive ability to differentiate the various forces impacting collaboration (Alexander et al., 2001). This

enables integrative public leaders to understand the historical issues, current realities, and future challenges that may impact multi-sector collaboration goals (Redekop, 2010).

*Integrative Behaviors:* Integrative behavior refers to actions of integrative public leaders to foster temporary or semi-permanent connections for the sake of common public goals (Alexander et al., 2001). Through keeping core values and purposes of the multi-sector collaboration alive, integrative behavior builds inter-relationships between parties that mobilize members toward a common purpose (Vangen & Huxham, 2003).

*Integrative Leadership Resources:* Integrative leadership resources refer to a moral desire to serve the community, the requisite expertise to engage in public issues, and having connections to important external agencies (Sun & Anderson, 2012). These resources include the expertise to engage in public issues and having connections to important external agencies to aid in integrative public leadership.

*Integrative Structures & Processes:* Integrative structures and purposes require leaders to be pragmatic and to institutionalize collaborative structures, systems and process (Sun & Anderson, 2012). This means recognizing the limits and benefits of collaboration structures and knowing when to involve others in the collaboration to aid in the success of the collaborative effort (Crosby & Bryson, 2010).

### **Significance of the Study**

This study could have far reaching impacts on both the natural resource management and leadership fields. Leadership development programs have been shown to positively influence an individual's leadership style as there is some evidence suggesting these programs lead to organizational and community impacts (Packard,

2009). A deeper understanding of how leadership development programs can enhance adaptive governance produced themes that could be applied to the enhancement of the practice of adaptive governance. Armed with the emergent themes from this study, natural resource managers, stakeholders and policy makers will have greater insight into the links between leadership and adaptive governance within their organizations and communities. Themes may also illuminate practices that should be avoided.

## Chapter 2-Review of Literature

### Introduction

This review of literature is intended to provide background for this mixed mode study and is bifurcated, containing literature on both public leadership and the evolution of adaptive management. Based on a review of literature in the areas of leadership and leadership development, the areas described below are considered by researchers and practitioners studying and implementing leadership within their organizations. Based on a review of literature on the evolution of adaptive management to adaptive governance, the areas described below are considered by researchers and managers studying, or implementing adaptive management and its successor adaptive governance. This exploration includes literature from the following major areas: adaptive management, constraints of adaptive management, collaborative adaptive management, constraints of collaborative adaptive management, adaptive governance, and leadership development, including; transformational leadership, integrated public leadership, and civic capacity.

Links between leadership and adaptive governance are also explored. Information gathered on these topics is intended to provide context to frame this inquiry into leadership and adaptive governance. The starting point is an overarching discussion relative to social dynamics and the adaptive management process, in which adaptive governance is rooted. At its core, the adaptive governance model compliments that of many innovative models in leadership by addressing natural resource management proposals from both natural science and social science perspectives.

## **Linking Social and Ecological Systems**

An ever growing pool of research exists linking the need for both social and ecological systems when dealing with complex, multi-faceted natural resource issues.

“Linkages between ecological and socioeconomic systems are key to ensuring environmental protection and economic growth” (Levin, 2006, p. 328). These linkages are viable starting points to bridge the gap between the ecological and sociological aspects of adaptive governance. Scarlett (2013) states,

Uncertainty, complexity, and change characterize the settings in which conservation and natural resource management decisions unfold. These questions involve matters of values, policy, and science. This convergence reflects a response to perceived needs for a tighter intersection of science and decision making, greater public engagement in knowledge building and decisions making, and improved decision outcomes. The aspirations for improved processes, public engagement, and outcomes confront both long-standing and emergent challenges (p. 1).

Due to the unpredictability of a natural system it is imperative to consider multiple viewpoints and constraints of such a system. It is important for psychological studies to extend beyond the confines of the individual and to examine thought processes in the context of multi-level social and environmental factors (Manfredo, Teel, & Henry, 2009). Social systems are equally as important as the natural systems being studied using adaptive governance. “Conserving species and ecosystems depends on our understanding of social systems and their interactions with ecological systems” (Berkes, Kofinas, & Chapin III, 2009, p. 131). Initially, adaptive management was conceived of and presented as a technical response to problems with ecological and social resilience (Walters & Holling, 1990), but has increasingly become as much a social and civic undertaking as a technical one (Gunderson, Holling, & Light, 1995). Through this evolution, adaptive

management has been transformed to that of adaptive governance. The conservation community has long faced an additional set of challenges that undermine the ability of conservation professionals to engage in effective social engagement (Knight et al., 2008). This missing component is the interest, motivation, and ability to foster collaborations, or individual civic capacity. Being an expert at social engagement must be addressed and has a key role to play in the outcome of adaptive governance. Many conservation professionals lack interdisciplinary training and consequently may lack individual civic capacity (Cundill, Cumming, Biggs, & Fabricius, 2012).

‘Successful’ resource management programs of any sort must enjoy social acceptability in addition to their bio-physical possibility and economic feasibility (Allan, Curtis, Stankey, & Shindler, 2008). Beratan (2014) also states,

Human activities are the primary drivers of system change in most natural resource management systems, so attention to human dynamics is essential for developing useful change hypotheses and leading indicators that can provide useful and timely feedback for adaptive management (p. 1).

Considering the human element as it pertains to adaptive governance is equally as important as the adaptive management method itself. Without the human element, adaptive management is purely a scientific process. Without the incorporation of multi-faceted stakeholders and their entities adaptive management remains simply a method of management that has been overused and frequently unsuccessful.

### **Adaptive Management: The Process**

Adaptive management seeks to improve the understanding of an ecosystem through the integration of science and management (Enck et al., 2006). It focuses on decision-making through hypothesis-tested field experiments. The adaptive management

framework follows several steps repeated in an interactive manner, including as described by Maris and Bechet (2009):

(1) A working group, composed of an epistemic community (scientists, managers, policy makers) and stakeholders, attends a workshop to assess the problem; (2) The group formulates hypotheses and designs models intended to simulate key relationships among the components of the sociobiological system they seek to manage; (3) On the basis of these models, a range of policy options is proposed that provides different scenarios; (4) A preferred outcome is selected and the correspondent policy is implemented; (5) Indicators of the system are chosen and monitored; (6) Monitoring provides evaluation of the policy; (7) Evaluation is used as new information in the model in order to reassess the problem and to adapt the policy (p. 968).

Since its establishment many decades ago adaptive management has been at the forefront of ecosystem management approaches (Gunderson & Holling, 2002). Adaptive management is a scientific method often used to help solve environmental and ecosystem concerns in various natural systems world-wide. When considering an environmental management problem, Gregory, Ohlson, and Arvai (2006) suggest four topic areas that should be used to establish criteria regarding the problems appropriateness for the application of adaptive management including: (1) The spatial and temporal scale of the problem; (2) The relevant dimensions of uncertainty; (3) The associated suite of costs, benefits, and risks; and, (4) The degree to which there is stakeholder and institutional support. Successful examples of adaptive management are few, due to a lack of social awareness associated with the specific study area. “Adaptive management represents an institutional response as resource management evolves from static, linear models of species or issues to social-ecological models that involve dynamic, “messy” relationships and less predictable conditions” (Monroe, Plate, & Oxarart, 2013, p.1). It has become the strategy of choice to address ecosystem complexity and uncertainty through interactive

steps of learning by doing, including managing by experimenting, monitoring, and incorporating results into future policies (Walters & Holling, 1990). Adaptive management is often proposed as the most effective way to manage complex systems thanks to its learning by doing design. However, experience suggests that social and institutional factors constrain the search for, and integration of, the genuine learning that defines adaptive management (Allan et al., 2008).

Understanding the ‘learning by doing’ design of adaptive management and incorporating the participation of the stakeholder throughout the duration of the process is vital to successful context awareness. Simply involving more stakeholders is not enough. Those that participate in the collaboration process must have some sense of leadership, be capable of engaging in collaborative efforts, and understand of local values (Berkes, Colding, & Folke, 2000; Yang & Pandey, 2011). For example, utilizing localized indigenous knowledge from those living in the area and dealing with environmental problems for decades as a tool to aid in adaptive management clarifies specific issues and how those issues have been historically managed in the area. Indigenous knowledge is knowledge of the area through generations and may not be considered initially, but this knowledge and the core values of local residents play a key role in the overall process and its success (Berkes, Colding, & Folke, 2000).

The process of collaboration is a key aspect of the adaptive management that is commonly rushed by managers. Adaptive management proposals should primarily be based on learning. As the process progresses from passive adaptive management (selecting the best management option and monitoring) to active adaptive management

(selecting multiple objectives and continuously researching their effectiveness) the intended result is increased learning (Gregory et al., 2006).

Adaptive management was originally conceptualized as a means of managing hard systems (i.e., complex systems that are viewed as external to the observer and possible to manage dispassionately). “When all the jargon is stripped away from adaptive management, it is a very intuitive, business savvy approach for navigation through complex challenges that have many unknowns and uncertainties” (Loftin, 2014, p. 6). This design was not intended as a one size fits all solution for environmental issues and that is what it has become. For adaptive management to lead to practical action, far more emphasis must be placed on the processes of inquiry that is involved in understanding social and ecological systems (Cundill et al., 2012). Taking the social dynamics of adaptive management for granted has left the process vulnerable. Natural resources management is comprised of a balance of social and ecological systems, one without the other weakens the process.

### **Constraints of Adaptive Management**

Some researchers claim that adaptive management is a failure, because it has not worked well over the longer term; and therefore think that natural resource management should shift back to conventional scientific approaches. Folke, Pritchard, Berkes, Colding, and Svedin (2007) suggest “Rethinking resource management science in a world of complex systems with nonlinear relationship, thresholds, uncertainty, and surprise, using a systems approach and adaptive management is better adapted for long-term sustainability” (p. 3). Adaptive management has many constraints that must be

considered for the process to be successfully implemented within any given complex environmental system. Gunderson and Light (2006) argue that adaptive management efforts in the Florida Everglades are failing because the institutions running them are “pathologically resilient” in the sense that the “management system is trapped in a structure that is not only resistant to change but unable to withstand change” (p. 324). The authors make a case that governmental mandates, planning-based paradigms, and vested interests all interact to inhibit the resolution of chronic environmental issues.

Many factors have limited adaptive management’s successful application, including insufficient coordination among scientists, stakeholders, and managers in the development of the adaptive management plan and its implementation (Johnson & Williams, 1999). Walters (1997) in his review of adaptive management of riparian ecosystems argues that a reason for failure lies in management stakeholders showing deplorable self-interest, and seeing adaptive-policy development as a threat to existing research programs and management regimes rather than as an opportunity for improvement. This is why it is important to address the social dimension and contexts.

These social dimensions include the processes of participation, collective action, and learning with regard to all stakeholders involved. A stakeholder is any group or individual who is significantly affected by, or significantly affects, natural resource management decisions (Decker, Riley, & Seimer, 2012; Glicken, 2000). Each stakeholder must be willing to participate in the collective action of the overall adaptive management process while being open-minded and learning throughout the process as well. “Because social-ecological systems are also affected by culture, history, and economics and involve

multiple stakeholders, engaging only resource managers and scientists in the learning-by-doing process can limit effectiveness of the management system” (Olsson, Folke, & Berkes, 2004, p. 78 ). Limited stakeholder engagement has been an issue of concern for many adaptive management plans over the years due to a lack of stakeholder management. "Stakeholder management as a concept, refers to the necessity for an organization to manage the relationships with its specific stakeholder groups in an action-oriented way to achieve the common goal” (Freeman, 1984, p. 52). Despite increased attempts to structure stakeholder conservation and resource management decisions within an adaptive management framework, cases of its successful application remain infrequent (Susskind, Camacho, & Schenk, 2012).

There has been a growing acceptance of bottom-up approaches that characteristically appreciate and incorporate local people and their local knowledge, skills, needs, and experiences (Smith, 2008). Conversely, a top-down approach to environmental management presumes that natural resource management should be performed solely by outside “experts” who are objective and rational, rather than subjective and irrational like local people and communities in the public sphere (Marshall, 2005). Early environmental policy and scholarly literature often described local people as “an obstacle to efficient and ‘rational’ organization of resource use” (Agrawal & Gibson, 2001, p. 13). Top down “experts” felt that local actors, without a degree in environmental management or earth sciences, would not have the capacity to effectively participate as intellectual and enlightened persons themselves (Carr, 2002). These thoughts and actions often yield negative results for the local communities and

citizens. Top-down “experts” can develop environmental management policies, programs, or projects that are locally unsuitable, unsustainable, and unaccepted (Carr, 2002).

The new bottom-up approach encourages local people, groups, and communities to organize themselves to work together on locally based environmental problems or issues (Agrawal & Gibson, 2001). In the bottom-up approach local knowledge is no longer disregarded, as it was in the traditional top-down narratives. This re-valuing of local capacities, capabilities, and knowledge can be extremely empowering for local communities’ participation in local environmental management projects and programs (Schouten & Moriarty, 2004).

Values are contextual, relative to a certain place, a certain time, and groups of people facing a problem and engaged in collective action. Moral values can thus be explored, scrutinized, and discovered in an experimental process involving all sectors of society (Maris & Bechet, 2009). Adaptive management can greatly benefit from pragmatic accounting of moral values in dealing with normative uncertainty as well as scientific uncertainty (Maris & Bechet, 2009). Moral environmental values are diverse and evolving in their inclusion in adaptive management. Actions to conserve biodiversity must address the moral questions of the values humans ascribe to nature, and these moral questions should be included in the management process itself (Maris & Bechet, 2009).

Because the decision maker’s perspective is limited and his or her attention is directed toward the constraints that define the most immediate problem in his or her environment, the dominant pattern of decision-making tends to be narrowly-focused,

sequential, and incremental (Quinn, 1980). Stakeholders often represent external organizations that may limit their viewpoints and overall goals of adaptive management. Organizational context imposes boundary, response, and perceptual/decision constraints that both limit the range of acceptable strategic choices and affect the organization's ability to identify problems and strategic opportunities, evaluate alternatives, make appropriate choices, and implement strategic decisions (Picken, 2010). Boundaries may be real and absolute, or merely accepted as "givens" in the enacted environment of the decision-maker (Smircich & Stubbart, 1985). Resource constraints reflect economic, physical, or competitive limits on the availability of essential resources. Response constraints represent limits on the flexibility and speed with which an organization can alter its strategic direction in response to changes in its context.

Perceptual/decision constraints impact organizational perception and introduce biases which affect strategic decisions by restricting both the range of alternatives considered and the information used to evaluate those alternatives (Picken, 2010). Organizations which are guided by an internally consistent sense of direction are more likely to be successful in addressing complex problems involving multiple decision-makers (Simon, 1964). It is important to consider the stakeholders viewpoint within the adaptive management process. Each stakeholder may have their own view, emphasizing the importance of the learning-by-doing design. Adaptive learning frequently plays a role in the selection of solutions (Cyert & March, 1963). This learning paired with individual viewpoints can make the difference in the outcome of the adaptive management process.

Describing how both the task environment and the organizational context are related to organizational strategy through adaptive decision-making, the framework addresses a “missing link” in a conceptual understanding of strategy formulation and implementation (Picken, 2010). Focusing on the process of organization-strategy from the perspective of the decision-maker enhances the understanding of the adaptive decision-making processes. This perspective complements the external observer perspective which has characterized much of strategic management research, and offers the potential to develop new and richer insights into many of the processes of strategic management (Picken, 2010).

Complex social dynamics, such as perspective, trust building, and power relations have often been underestimated and the view of social relationships simplified. Once a problem needing collaboration moves into the public arena, stakeholders tend to become frozen in polarized positions, and any real negotiation becomes difficult (Westley, 1995). Consequently, many attempts for ecosystem stewardship have failed (Folke, Hahn, Olsson, & Norberg, 2005). The essential role of individuals needs to be recognized in this context (e.g. leadership, trust building, perspective, and meaning); their social relations (e.g. organizations and knowledge systems) and social networks serve as the web that makes the collaborative efforts of the adaptive management process productive ones. In other words, adaptive management needs champions who have (or who have been given) the time, resources, capacities, and power to influence the ways in which policy is devised and its tools are implemented (Walters, 2007). The viewpoints of the individual

and their social connections highlight the importance to consider social aspects such as leadership and civic capacity to strengthen adaptive management.

### **Collaborative Adaptive Management**

Collaborative adaptive management was developed in an attempt to bridge the gap between social aspects and the scientific aspect of adaptive management.

Collaborative adaptive management is commonly discussed as the best way to handle natural resource management in the face of uncertainty. Folke et al. (2002) define collaborative adaptive management as a process by which institutional arrangements and ecological knowledge are tested and revised in a dynamic, ongoing, self-organized process of learning by doing. This process mirrors that of adaptive management itself, but actively focuses on the social aspect of adaptive management. Collaborative adaptive management efforts should set clear overarching goals, concrete and measurable objectives, employ tools and incentives to facilitate participation and foster collaboration, implement well-defined joint fact-finding protocols to promote shared learning and manage scientific uncertainty, and commit to monitoring and adapting their management regimes over time (Susskind et al., 2012). The collaborative adaptive management strategy can increase the resilience of a system by improving people's ability to perceive and understand responses of a social-ecological system and to react to those changes in a timely and appropriate way (Olsson et al., 2004).

Incorporating aspects of collaboration and fostering a shared learning environment, collaborative adaptive management emphasizes the importance of the involvement of stakeholders to the overall adaptive management process. Collaborative

adaptive management adds specific stakeholders to the scientific deliberations through power sharing, capacity building, and learning strategies (Monroe et al., 2013). Often the stakeholders added to the adaptive management process in collaborative adaptive management are those from social backgrounds such as a mediator, collaboration specialist, or local political interest. The combination of both stakeholder engagement and adaptive management has led to agreement on contentious issues, more innovative solutions, and more effective land management (Caves, Bodner, Simms, Fisher, & Robertson, 2013).

There are three main points governing collaborative adaptive management: (1) The social responsiveness to ecosystem dynamics, (2) the understanding of social sources of resilience and, (3) the capacity of collaborative adaptive management systems. Management is about bringing together old knowledge, from diverse sources, into new perspectives for practice (Westley, 1995). Collaborative adaptive management differs from traditional adaptive management with its focus on the social aspects, propelling adaptive management from simply a scientific method into more of a collaborative model. The contemporary science of natural resource management is focused on detailed single-species models; and policy recommendations are based on optimal sustainable use of these species without accounting for the role of ecosystem dynamics and regional patterns and processes (Levin, 1999). The goal should be to seek an improved understanding of the dynamics of the whole system, including social systems, as opposed to detailed knowledge of parts of the system, and that is the gap collaborative adaptive management addresses.

Change in ecosystems and society can sometimes be gradual or incremental while at other times it can be abrupt and trend towards disorganization. Responding to varying levels of change will require new forms of human behavior accompanied by a shift in perspective. Ecosystems are complex adaptive systems. The ecosystem-based approach recognizes the role of the human dimension in shaping ecosystem processes and dynamics (Dale, Brown, Haeuber, Hobbs, & Huntly, 2000). However, in the past little emphasis has been placed on the role of the human dimension. The human dimension reflects properties of complex adaptive systems, such as a diverse set of institutions and behaviors, local interactions between actors, and selective processes that shape future social structures and dynamics (Holland, Holyoak, Nisbett, & Thagard, 1986).

Developing the capacity of individuals to learn effectively from their experiences is an important part of building knowledge and skills into organizations and institutions to permit good adaptive management (Fazey, Fazey, & Fazey, 2005). Collaborative adaptive management is a flexible community-based system of resource management tailored to specific places and situations (Folke et al., 2005). Collaborative adaptive management allows for the engagement of local stakeholders in a capacity adaptive management never has. It combines the dynamic learning characteristic of adaptive management with the characteristics of both cooperative and collaborative management. Because collaborative adaptive management extends adaptive management into the social domain this process must involve local, as well as higher, organizational levels to aim at finding a balance between decentralized and centralized control (Imperial, 1999).

The structured ways of conservation science and its implementation have long needed this social element. “Philosophy and practice of conservation science that goes beyond biology and beyond the norms of modern science to construct knowledge that is useful for environmental decision making” (Robertson & Hull, 2001, p. 400). An emerging science of sustainability needs all stocks of knowledge and institutional innovations to navigate transition toward a sustainable planet (Kates, 2001). This emerging environmental science must place emphasis on the incorporation of local knowledge. Recovery of traditional ecological knowledge as adaptive management offers prospects for scientist to address the problems that beset conservation biologists and restoration ecologists (Berkes et al., 2000). This local knowledge representation is of utmost importance to the success of collaborative adaptive management and its overarching goals.

### **Constraints of Collaborative Adaptive Management**

Successful applications of collaborative adaptive management, however, have been elusive in practice (Susskind et al., 2012). Much like adaptive management, collaborative adaptive management has not successfully addressed the entire social dimension while partaking in sound science. Shortcomings of collaborative adaptive management efforts often arise from failure to carefully formulate management processes and adjust them over time. Collaborative adaptive management experiments are too often designed without: (1) Clear overarching goals, with measurable objectives; (2) Well-defined fact-finding protocols to promote shared learning; (3) Tools and incentives that facilitate participation and foster collaboration; and, (4) Clear procedures for managing

the program adaptively for the cultivation of long-term capacity building (Susskind et al., 2012).

In both social and scientific capacities there must be clear overarching goals with measurable objectives. Without these, collaboration and long-term capacity building cannot be achieved. Stakeholders must be willing to look at the problem from all views through the use of collaborative efforts. Collaborative adaptive management is a novel approach to environmental management that combines the dynamic learning features of adaptive management with the linking and network features of collaborative management (Smedstad & Gosnell, 2013). However, simply the inclusion of social aspects such as open discussion and cooperation are not enough, as with scientific practices these social elements must be planned and accounted for, with opportunities for learning, knowledge, and facilitation in place. “Adaptive management without collaboration lacks legitimacy, and co-management without learning-by-doing does not develop the ability to address emerging problems” (Berkes, 2009, p. 1698).

Many resource management decisions present information challenges, coordination challenges, action challenges, and challenges of understanding and measuring results. Collaboration and adaptive management, in part, are responses to these challenges. Emphasis on collaboration embodies a recognition that the three characteristics of resource management, uncertainty, complexity, and change pertain not only to physical systems, but also to human communities (Scarlett, 2013). Other factors that have been overlooked within collaborative adaptive management are the forces acting on the management and collaborative efforts themselves. Results from Smedstad

and Gosnell's (2013) study on long-term outcomes of place-based riparian assistance collaborative adaptive management processes supports the notion that external factors influence collaborative efforts. Smedstad and Gosnell (2013) state:

These cases all point to the importance of antecedent conditions, context, and situational factors; in places with existing forms of capacity and capital, be it the presence of facilitative leadership or a history of collaboration, interventions are more likely to be effective long term (p. 8).

Collaborative adaptive management has established the groundwork bridging the scientific and social aspects of traditional adaptive management. Lack of knowledge about how to manage the human dynamics of co-management poses a major challenge to implementing collaborative adaptive management (Beratan, 2014). Although considered in collaborative adaptive management, the social dynamics play a large role in the outcome of any adaptive management process. Through the consideration of the human element alongside the scientific element collaborative adaptive management opens the door for yet another cooperative model of adaptive management.

### **Adaptive Governance**

In recent years, cooperative efforts, collaborative efforts, and participatory approaches have become increasingly popular in ecosystem management and governmental policy. Stakeholder meetings and engaging different actors in workshop settings have become an increasingly important part of the ecosystem management process. There has been a tendency, however, for natural scientists to do the science first or governmental agencies to develop the agenda first, present it to different groups, and incorporate these groups in already established frameworks (Folke et al., 2005).

Collaborative adaptive management began to address this issue, but adaptive governance addresses this issue in extensive detail. Dietz, Ostrom, and Stern (2003) use the concept of adaptive governance to expand the focus from adaptive management of ecosystems to address the broader social contexts that enable ecosystem-based management. Adaptive governance refers to the evolution of the rules and norms that promote the satisfaction of underlying human needs and preferences given changes in understanding, objectives, and the social, economic, and environmental context (Hatfield-Dodds et al., 2007). Adaptive governance builds upon collaborative adaptive management to fully incorporate and account for the role of humans during any given adaptive management undertaking. Berkes and Folke (1998) use the term “social-ecological” system to emphasize the integrated concept of humans in nature and to stress that the delineation between social and ecological systems is artificial and arbitrary. This social-ecological aspect builds on both adaptive management and collaborative adaptive management to ensure social aspects of the process bear representation equal representation to the scientific process. Research suggests that socio-ecological systems can have powerful reciprocal feedbacks and act as complex adaptive systems (Gunderson & Holling, 2002).

Addressing only the social dimension of resource management without an understanding of the resource and ecosystem dynamic is not sufficient to guide society toward sustainable outcomes. At the same time, focusing only on the ecological side as a basis for decision making for sustainability may only lead to narrow conclusions. Adaptive governance, however, involves the devolution of management rights and power

sharing to promote participation (Imperial, 1999). Adaptive governance is a concept extending from institutional theory that deals with the evolution of institutions for the management of shared assets, particularly common pool resources, and other forms of natural capital (Hatfield-Dodds, et al., 2007). Common pool resources such as water, wildlife, or land, and the natural capital they represent are of utmost importance and play a vital role in adaptive governance. Adaptive governance systems often self-organize as social networks with teams and actor groups that draw on various knowledge systems and experiences for the development of common understanding and common policies (Folke et al., 2005).

Theories and approaches to environmental and resource management have, to a large extent, focused on single issues or resources and have been based on a steady-state view, interpreting change as gradual and incremental while disregarding interactions across scales. Temporal scales are elusive and difficult to account for during any adaptive governance, making measurable objectives hard to set and achieve at times. Given the status quo, these partial approaches are less useful wherein the capacity of many ecosystems to generate resources and ecosystem services for societal development has become vulnerable to change and can no longer be taken for granted (Folke et al., 2005). The status quo must be considered, but not repeated. This is the goal of adaptive governance, to authenticate the social aspect of the adaptive management process.

Authentic change will require new forms of human behavior including shifts in perspective from the aspiration to control change in systems that are assumed to be stable, to systems that sustain and generate desirable pathways for societal development

in the face of the increased frequency of abrupt change (Van Der Leeuw, 2000).

Although important, addressing only the social dimension of resource management without an understanding of resource and ecosystem dynamics will not be sufficient to guide society toward sustainable outcomes (Folke et al., 2005). Adaptive governance places equal emphasis on both the ecological and social dimension of environmental problems commonly addressed using adaptive management.

Advocating an adaptive governance approach suggests a triad of activities, wherein governance is the process of resolving trade-offs and of providing a vision and direction for sustainability where management is the operationalization of this vision and monitoring provides feedback and synthesizes the observations for a narrative of how the situation has emerged and might unfold in the future (Boyle, Kay, & Pond, 2001). One goal of adaptive governance is to take on the role of bridging organizations that have the ability to strengthen social capital and the capacity for effective governance of multilevel organizations involved with ecosystem management (Folke et al., 2005).

To properly address the issues of social capital and effective governance the facilitation of the social construct must be considered. Processes that generate learning, meaning, knowledge, and experience of ecosystem dynamics expressed in management practice are part of the social capacity of responding to environmental change (Folke et al., 2005). As emphasized in transformational leadership and learning that helps develop adaptive expertise (an individual's ability to deal flexibly with new situations) and processes of sense making (Weick, 1995) are essential features in governance of complex socio-ecological systems, and these skills prepare managers for uncertainty and surprise.

Within natural resources management unexpected surprises are inevitable since the problems being addressed do not follow any set regulations or rules set by man. Sense making implies taking interpretations seriously, inventing and reinventing a meaningful order, and then acting upon it (Westley, Carpenter, Brock, Holling, & Gunderson, 2002).

Learning from ecosystem management is often considered to be a social process referred to as social learning (Lee, 1993; Clark, Jager, Van Eijndhoven, & Dickson, 2001). This social learning aspect has been described as the concept of institutional learning. For example, Ostrom (2005) stresses that theory and evidence play a key role in increasing the probability of selecting rules for resource management. These rules for resource management lead to better outcomes, as these rules must advocate to view all policies as ongoing learning experiments that need to be monitored, evaluated, and adapted over time.

Although adaptive management focuses on understanding ecosystem dynamics and feeds on ecological knowledge that manifests itself as management organizations, adaptive governance conveys multi-objective reality when handling conflicts among diverse stakeholders and, simultaneously, adapts to social problems in an effort to resolve issues concerning dynamic ecosystems (Dietz et al., 2003). This adaptation to social problems has aided in the collaborative efforts that must occur throughout the duration of any adaptive governance process. Adaptive governance involves devolution of management rights and power sharing that promotes participation (Folke et al., 2005). Through this participation, objectives of the overall adaptive governance plan can be addressed thanks to the emphasis on the social elements.

Successful social transformations toward adaptive governance for ecosystem management seem to be preceded by the emergence of informal networks, orchestrated by key individuals, that help facilitate information flows, identify knowledge gaps, and create nodes of significant expertise in ecosystem management that can be drawn upon at critical times (Folke et al., 2005). As with collaborative adaptive management, adaptive governance must take into account both the internal and external social aspects and how each may influence each individual stakeholder. External resources and actors can play an important role, interacting with internal and local ones, in creating civic arenas or forums as well as social and political spaces for deliberation (McCay, 2002). Networks of collaboration may emerge from different actors and levels, including local as well as governmental initiatives (Folke et al., 2005). These collaboration networks can provide an arena where social capital, or one's internal and external connections is enhanced and where concerns are reformulated to generate innovation and nurture renewal especially during times that require reorganization. Social capital focuses on relationships among such groups, i.e., the bridging and bonding links between people in social networks (Tompkins & Adger, 2004; Newman & Dale, 2005). Informal collaboration dominates at the local level but may also span regional and global levels (Folke et al., 2005). Informal collaborative efforts such as those presented at conferences during a meal or free time establish an individual's credibility and help to enhance their overall social capital.

Complex social dynamics, such as trust building and power relations, have often been underestimated and the view of social relationships simplified (Folke et al., 2005). These complex dynamics are vital to any collaborative effort, without trust a relationship

will not be built. That relationship and trust play a key role in the outcome of any collaborative effort, especially when the issue at hand may include conflict. The essential role of individuals needs to be recognized in this context (e.g., leadership, trust building, vision, and meaning) and in their social relations (e.g., actor groups, knowledge systems, social memory). Social networks serve as the web that ties together adaptive governance (Folke et al., 2005). Without the consideration of social relations and their complex relationships to other concepts like trust building, power relations, and social capital the adaptive governance would go nowhere. The social relations of stakeholders both formal and informal play a role in the success of adaptive governance. Hence, successful adaptive governance is dependent on leaders with the civic capacity to lead complex multi-sector collaboration efforts. And, leadership development programs need to produce leaders with civic capacity and public leadership skills.

### **Need for Leadership within Adaptive Governance**

Leadership has been described as “the most important attribute in the toolkit of a conservation biologist” (Dietz et al., 2004, p. 274). “Leadership must be acknowledged and supported as an object of study, teaching, and professional development in conservation science” (Manolis et al., 2008, p. 880). These two perspectives highlight the importance of this study and the consideration of leadership within the natural resources field. Leadership is the act of influencing outcomes, without influence, leadership does not occur. (Yukl, 2012). To be an effective leader, it is necessary to influence others to support and implement decisions that both the leader and group members agree upon.

Leaders develop not only individuals but processes such as collaborative initiatives or brainstorming sessions.

Collaboration in governance networks requires leadership. Crises that arise within socio-ecological systems open up arenas for new leadership. Leadership is an essential component in shaping change and reorganization by providing innovation in order to achieve the flexibility needed to deal with ecosystem dynamics (Folke et al., 2005). Leaders provide key functions for adaptive governance. Key individuals develop and communicate visions of ecosystem management that frame self-organizing processes (Westley, 1995). These individuals often have the ability to manage existing knowledge within social networks for ecosystem management and work to further develop those networks. Leadership is essential in shaping change and reorganization by providing innovation in order to achieve the flexibility needed to deal with ecosystem dynamics (Folke et al., 2005). Leadership provides an avenue for the incorporation of civic capacity into adaptive governance. Leadership highlights the important social aspects of adaptive governance, and through leadership development these social aspects are enhanced. Leaders can provide key functions for adaptive governance, such as building trust, making sense, managing conflict, linking actors, and initiating partnership among actor groups, compiling and generating knowledge, and mobilizing broad support for change. Key individuals also develop and communicate visions of ecosystem management that frame self-organizing processes (Westley, 1995).

Many patterns of adaptive governance can be understood by personal traits. These traits combined with the roles of teams or actor groups are important factors for building

civic capacity and provide a source of social resilience in socio-ecological systems (Folke et al., 2005). Applied to adaptive governance, these relationships must be fed with relevant knowledge of ecosystem dynamics. Linking different actor groups in networks and creating opportunities for new interactions are important for dealing with uncertainty and change and are factors critical for learning and nurturing integrated adaptive responses to change (Stubbs & Lemon, 2001). For instance, in a study for the U.S. Fish and Wildlife Service, Danter et al. (2000) highlight the need for organizational change as a component of ecosystem management and put forward the role of leadership to actively initiate change within organizations. Visionary leaders fabricate new and vital meanings, overcome contradictions, create new synthesis, and forge new alliances between knowledge and action (Westley, 1995). These innovative ways of thinking are learned through leadership development and are enhanced over time. “Leadership is a critical tool for expanding the influence of conservation science, but recent advances in leadership concepts and practice remain underutilized by conservation scientists” (Manolis et al., 2008, p. 880).

Expanding the social aspect of adaptive governance to include leadership and civic capacity as areas of exploration must be considered. New models of leadership emphasize collaboration, shared power, and recognition of multiple leadership styles and roles (Crosby & Bryson, 2005). The inclusion of shared power mirrors that of adaptive governance and balancing the power relations and relationships stakeholders. “Leaders can play a key role in keeping conflict within a tolerable, productive range” (Gunderson & Light, 2006, p. 324). Leadership has been studied and employed in multiple arenas

throughout the years, but hasn't broken into the natural resources field to the extent it has in other fields. Managers are not sufficiently encouraged or empowered to employ innovation through experimentation (Gunderson & Light, 2006). Scientists are all too often segregated from social and economic drivers as they address technical considerations (Gunderson & Light, 2006). Adaptive governance emphasizes socio-ecological systems and the interplay these two have.

Leadership is a critical element in preparing the system for change, especially when it comes to strategies for exploring new configurations of socio-ecological systems (Olsson et al., 2004). Adaptive governance is dependent on leadership to address collaboration, power sharing, and social capital. Johnson and Herring (1999) suggest that "The day of scientists as philosopher kings is over, the day of scientists as leaders is just beginning" (p. 370).

To date, there has been a lack of leadership to carry out the complicated administrative steps involved in moving a new management vision into actual field practice (Walters, 2007). Adaptive governance incorporates social elements without utilizing the help of leadership theory to enhance the overall effectiveness. Sound leadership, not just in a hierarchical sense, but throughout an organization, is required to support this radical departure in thinking and practice (Walters, 2007).

Change is often abrupt and unexpected, resulting in a radical departure from the intended plan. Leadership can prepare stakeholders involved in adaptive governance for such a departure. When such leadership is in place purposeful activities can be developed and implemented. Leadership is necessary to bring diverse groups and organizations

together in semi-permanent ways, and typically across sector boundaries, to remedy complex public problems and achieve the common good. This leadership has been called integrative public leadership (Crosby & Bryson, 2010), collaborative leadership (Alexander, Comfort, Weiner, & Bogue, 2001; Umble et al., 2005; Vangen & Huxham, 2003), and collaborative governance (Page, 2010). There are several theories to consider when incorporating leadership into the adaptive governance effort. Figure 1 demonstrates the transition of adaptive management to adaptive governance through the addition of stakeholder engagement and integrative public leadership.

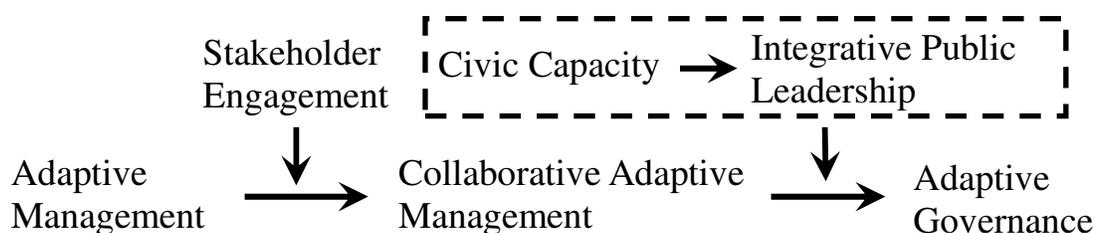


Figure 1. Progression of natural resource management with the addition of stakeholder engagement and integrative public leadership. Dashed box represents the focus of this thesis.

### Leadership Development

The two primary goals of early leadership development programs were to develop leadership skills and to enhance participant's knowledge of topics (Black & Earnest, 2009). These goals have since expanded and a deeper understanding of the need for leadership development on multiple levels has been investigated by researchers over the years. Furthermore, leadership development is a time-based process that cannot be accomplished at one point in time (Avolio, 2011). The following section discusses how

leadership development programs can cultivate the necessary skills to affect integrative public leadership, and thus improve adaptive governance.

Individuals need to be trained to observe how they perceive themselves in order to actively observe others. In this way, individuals learn to observe by distinguishing certain information separate from the background in which it is presented. Learning is the act of learning new distinctions that would otherwise go unnoticed (Avolio, 2011). There will be far more effort invested into translating models such as that of adaptive governance and theories of leadership if they become the structure upon which development is based. “Through modeling we can transmit skills, attitudes, values, and emotional proclivities” (Bandura, 1986, p. 5). The better able we are to show the relevance of valid models, the more likely we will be to accelerate development based on something that is proven to have worked in the past (Avolio, 2011).

Avolio (2011) provides four principles that leadership development programs should aim to achieve when developing leaders:

- Principle 1: The most exemplary leaders, teams, and organizations are balanced in how they manage their vulnerabilities. Vulnerabilities are embraced, understood, dealt with, and certainly not avoided.
- Principle 2: Through identification, the greatest force for control is created between leaders and followers, and that force is called commitment, not compliance.
- Principle 3: The highest type of trust is typically afforded to those most closely identified with and to those who often appear to be, or are vulnerable.

- Principle 4: The leaders demonstrate a perspective or frame of reference or both that they can put themselves in those situations those others endure that maybe are different from their own, which enables them to fully appreciate how others feel and react.

America's self-image is tempered by the dominant role that personal power and privilege have played throughout its history (Easterling & Millesen, 2012). Leadership training has aided in the development of such personal power due to new ways of thinking. "Innovation depends as much on collective difference as on aggregate ability" (Easterling & Millesen, 2012, p. 20). This innovation and development is vital to mold future leaders and their ways of thinking. Without appropriate training, guidance, and encouragement, emerging leaders can grow frustrated and step back into more comfortable territory (Easterling & Millesen, 2012). New and different voices at the table allow more possibility for disagreement, which in turn can stimulate a group in moving to the concrete action that ultimately will make a difference on the issue at hand. It is important not only to provide new avenues for "regular people" to engage in civic affairs but also to equip emerging leaders with the leadership skills necessary to engage fully in the process of solving complex community issues (Easterling & Millesen, 2012).

"It's not enough to invite more people to the table. They also need to learn how to do creative things together in the kitchen" (Easterling & Millesen, 2012, p. 22). The individuals at the table, their personalities, knowledge, and skill set all have a role to play. Avolio (2011) also stated,

Adaptive conflict represents the highest order of human interaction and the essential basis on which truly profound insights are generated and deployed.

Unless there is some degree of tension, which conflict generally creates, there are no insights. Part of what constitutes effective leadership is coming to know how to hold tension with others in order to achieve insight (p. 37).

Leadership has influence in organizations and leaders are a key factor in developing organizational efficacy (Bohn & Grafton, 2002). Organizational efficacy is strongly related to a sense of mission or purpose. In other words, leadership behavior influences an overall perception of how the organization itself will perform. Leadership is most strongly related to collective capability. Leaders orchestrate teams, show direction, apply resources, and give encouragement to stay the course when that is the best choice. This makes sense, since a view of the future is often the direct result of leadership (Bohn & Grafton, 2002).

It is important to successful leadership in organizations to have everyone within the organization involved in the process of actively learning and adapting in order to create an organizational competitive advantage. Such learning organizations involve a proactive, creative approach to solicit involvement and empower employees at all levels of the organization (Hannah & Lester, 2009). These creative approaches must include adult learning techniques. Adults need to be informed as to why they need to learn and why a topic is of value to them (Caffarella, 2002). The individual must be motivated to learn to fulfill expectations for oneself or others, improve one's ability to serve one's community or for professional advancement (Birkenholz, 1999).

Leadership emerges from the interactions among individuals (Redekop & Olson, 2010). Two leadership theories that address the skills discussed above and correspond

well to adaptive governance are transformational leadership and integrative public leadership.

### **Transformational Leadership**

Leadership development programs, such as the NWLA, incorporate transformational leadership (Bass & Avolio, 1994) into their program design to promote collaboration, and develop interpersonal skills to become actively involved with water policy issues at the local, regional, state, and national levels. Transformational leadership is the dominant leadership style in the field of leadership development and theory (Judge, Woolf, Hurst, & Livingston, 2008). Transformational leaders go beyond the immediate goal, challenge basic assumptions, and emphasize the basic ethical and moral values of all goals and decisions. Transformational leadership involves motivating others to go beyond what was originally intended, doing more than they thought possible (Avolio, 2011). Transformational leadership influences follower performance and innovation (Boerner, 2007). Bass, Avolio, Jung, and Berson (2003) describe four higher-order behaviors, or four “I’s”, within transformational leadership: idealized influence, inspirational motivation, intellectual stimulation and individualized consideration.

Idealized influence means that leaders are admired, trusted, and respected by others, resulting in followers desiring to emulate the leader. Inspirational motivation means that leaders motivate others by providing meaning and challenge to their work. Intellectual stimulation is illustrated by leaders challenging others to question assumptions, reframe problems and approach old situations in new ways. Individualized consideration occurs when leaders pay attention to others individualized needs for

achievement and growth. Transformational leaders inspire followers to achieve extraordinary outcomes by providing both meaning and understanding.

These leaders align the objectives and goals of individual followers and the larger organization and provide the follower with support, mentoring, and coaching (Bass & Riggio, 2006). The follower influence aspect of transformational leadership theory is important to continuously build leaders within an organization. Meta-analysis has shown a positive relationship between transformational leadership and organizational performance (DeGroot, Kiker, & Cross, 2000). “Transformational leadership fits the needs of today’s work groups, who want to be inspired and empowered to succeed in times of uncertainty” (Northouse, 2007, p. 175).

Transformational leadership strengthens debate among followers, by encouraging follower participation, and this communication style stimulates follower innovation (Boerner, Eisenbeiss, & Griesser, 2007). This follower innovation involves the incorporation of the four “I’s” during the leadership development process. These developing leaders demonstrate a passion for learning new and different things, which often is diffused into the climate and culture of their work unit (Avolio, 2011). Evaluation is a key aspect of transformational leadership and developing followers to their fullest possible potential. Research shows that leaders who have been evaluated by their followers as more transformational were shown to exhibit a broader range of learning interests (Avolio, 2011). These learning interests allow the new leader to view subjects through different lenses than before, broadening their own viewpoints. Utilizing broader

viewpoints has been a constraint of adaptive management to this point that transformational leadership can begin to address.

Transformational leadership is one of the theories the NWLA is founded on. Previous research found a significant increase in NWLA participant's transformational leadership skills (Burbach, Reimers-Hild, & Cramer, 2015).

### **Integrative Public Leadership**

Integrative public leadership focuses on collaboration among diverse groups and organizations focusing on the same goal. Sun and Anderson (2012) suggest that integrative public leaders catalyze multi-sector collaboration through the use of integrative thinking, integrative behavior, integrative leadership resource management, and integrative structures and processes. Integrative public leadership which involves bringing diverse groups and organizations together in semi-permanent ways, typically across sector boundaries to remedy complex public problems and achieve the common good (Crosby & Bryson, 2010). Transformational leadership augmented with civic capacity can catalyze any public collaborative effort. See Figure 2 for a detailed description.

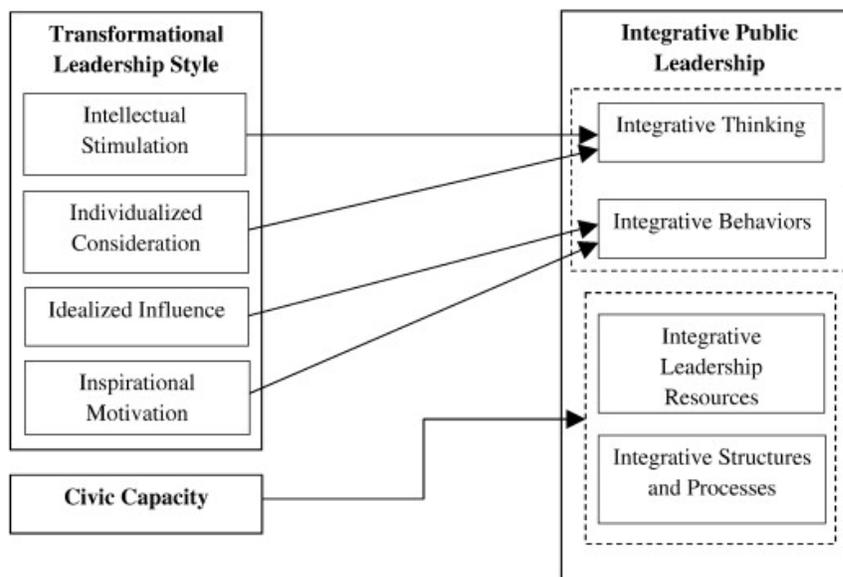


Figure 2. The impact of transformational leadership and civic capacity on integrative public leadership as seen in Sun and Anderson (2012).

Integrative thinking involves the cognitive ability to differentiate the various forces impacting collaboration (Sun & Anderson, 2012). Integrative behavior refers to actions to foster temporary or semi-permanent connections for the sake of common public goals. Integrative leadership resources refer to a moral desire to serve the community. Integrative structures and processes require leaders to be pragmatic and to institutionalize collaborative structures, systems and process.

Integrative public leadership is important to successful collaborative efforts. NWLA participants learn the four components of transformational leadership, which Sun and Anderson (2012) suggest catalyze integrative public leadership. Due to the background of NWLA participants and expanded knowledge base, integrative public leadership would benefit from the participation of those already trained in transformational leadership. NWLA participants would benefit from participating in integrative public leadership as well due to the nature of their work in the water arena. Natural resources management is highly collaborative and adding in diverse groups and organizations is common. Integrative public leadership aids in the overall collaboration process and would be highly beneficial for NWLA participants.

Integrative thinking and integrative behavior are both sub-categories of integrative public leadership directly affected by transformational leaders. Integrative

thinking involves discerning between the different elements of collaboration while maintaining a view of the big picture. Integrative behavior involves mobilizing members towards a common goal while building inter-relationships among individuals. Integrative leaders are able to shape the issues around the dominant reasoning, while transformational leaders are able to intellectually craft captivating messages in different ways so as to relate with the valued identities of individual stakeholders (Jansen, Vera, & Crossan, 2009). Transformational leaders do this through the direct application of individualized consideration and intellectual stimulation. Integrative leaders are also able to provide ideas during times of crisis and diffuse the situation. Through inspirational motivation, transformational leaders are able to take advantage of crisis and promote strong sense of collective identity during this time, improving inter-personal relationships (Jansen et al., 2009). This link between transformational leadership and integrative public leadership is key to the success of the collaborative effort.

### **Civic Capacity**

Sun and Anderson (2012) contend civic capacity augments the effect of transformational leadership on integrative public leadership. Civic capacity is an individual's ability and efforts to be involved in the community to assist in resolving public issues. Civic capacity is composed of three components: civic drive, civic connections, and civic pragmatism. Civic drive refers to the desire and motivation to be involved with social issues. Civic connections are the network of social and cultural institutions that can be mobilized for joining actions. Civic pragmatism is the ability to translate social opportunities, by leveraging structures and mechanisms for collaboration.

Civic capacity is related to integrative public leadership through the altruistic motive of community involvement. This moral desire to be involved, or civic drive component, is important when discussing the leader's ability to integrate leadership resources and integrate structures and process. These sub-categories of integrative public leadership both involve a moral desire to serve the community and leveraging one's social capital when needed. Without civic capacity, integrative public leadership lacks the mobilizing constructs needed to drive the altruistic motives of individuals to not only become involved but to leverage their social capital for the sake of the collaborative effort. Sun and Anderson (2012) make a strong case for augmenting transformational leadership with civic capacity to support integrative public leadership. These three items can help explain successful leadership in multi-sector collaborations such as those pursued in the case of adaptive governance.

Regardless of the organizational level at which leadership for an adaptive governance initiative may be rooted, a key attribute of successful leadership is effective communication that gains broad support (Greig, Marmorek, Murray, & Robinson, 2013). In the study by Greig et al. (2013), respondents consistently indicated that leadership enabled adaptive management, regardless of overall project success. Enabling adaptive governance thus requires strong leadership in working with people to seek equitable resolution to conflicts and to gain agreements that allow an adaptive governance initiative to move forward (Walters, 2007). Adaptive governance incorporates the social element of natural resource management, and transformational leadership and civic capacity can catalyze this effort. The argument presented by Sun and Anderson (2012) highlights the

impact transformational leadership augmented with civic capacity can have on any multi-sector collaborative effort. Adaptive governance is the process developed to combat the lack of social integration within natural resource management. Utilizing leadership theory and its practices can enhance the understanding of the social complexities that have plagued and slowed adaptive governance to date.

## Chapter 3-Methods

### Overview

This mixed mode study was conducted following the general guidelines of Creswell's (2012) qualitative and quantitative approaches to research. The mixed mode research design is a procedure for collecting and analyzing both quantitative and qualitative methods in a single study to understand the research problem (Creswell, 2012). This methodology was selected due to its focus on exploring the effects of not only the NWLA program itself but the leadership experiences participants encountered both during and after the Academy to explore even deeper outcomes. Both types of data, quantitative and qualitative together, provide a better understanding of the research problem at hand (Creswell, 2012). By collecting and analyzing civic capacity and integrative public leadership information from alumni, program directors can modify the NWLA accordingly to establish leadership beyond the individual level and increase the impact of the program. This study provides insights into the links between a leadership development program and adaptive governance. Specifically, this study investigated the link between leadership development, civic capacity, and integrative public leadership in the context of adaptive governance.

### Rational for Mixed Mode Design

The need for both quantitative and qualitative methods on this subject matter is apparent. This inquiry into the leadership experiences pertaining to an individual's integrative public leadership lends itself well to a mixed mode design including both a

qualitative and quantitative aspects. Individual insights will best be discovered through a qualitative design. Stake (2010) explained,

Two realities exist simultaneously and separately within every human activity. One is the reality of personal experience, and one is the reality of group and societal relationships. The two realities connect, they overlap, they merge, but they are recognizably different (p. 18).

This inquiry focused on the experience of the NWLA in developing alumni civic capacity and integrative public leadership skills. Bogdan and Biklen (2007) defined qualitative research as “an approach to social science research that emphasizes collecting descriptive data in natural settings, uses inductive thinking, and emphasizes understanding the subjects point of view” (p. 274). These individual interviews in a comfortable setting follow this design and are vital to understanding the individual leadership experiences of participants. Denzin and Lincoln (2005) explained further, “This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them” (p. 3). A quantitative approach will provide insight into the link between leadership and civic capacity, it is only through deep, individual interactions and observations that insights will be understood in their full complexity.

Likewise, Creswell (2012) explains the strengths of quantitative data collection, “investigators conclude their research by summarizing the detailed results in general statements” (p. 201). These general statements include “noting potential limitations, these limitations build directly into suggestions for future research that will improve and further contribute to the literature on the topic” (Creswell, 2012, p. 201). Quantitative design builds broad statements in which researchers can then maximize using further

qualitative or quantitative investigation tactics. Such is the case in the study at hand, and also why mixed mode design was chosen.

### **Design Approach**

The study methodology used was composed of two independent research designs, including independent quantitative and qualitative measures under the conceptualization of a case study. “A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 2008, p. 18). The researcher explored the issue of leadership involvement and civic capacity through the experiences of NWLA alumni, making this an instrumental case study. “An instrumental case study is examined mainly to provide insight into an issue or to redraw a generalization. The case is of secondary interest, it plays a supportive role, and it facilitates our understanding of something else” (Stake, 2005, p. 437). During the collection of quantitative and qualitative data the researcher applied findings to the overarching theme of civic capacity and integrative public leadership in the context of adaptive governance. This link was expressed through the intensive literature review on both the scientific aspect of adaptive governance and the social component of leadership development that highlight linkages between the two phenomena. This analysis applies directly to the data collected from both the quantitative questionnaire and qualitative interviews.

The quantitative questionnaire was composed of 31 questions administered in an on-line format. The questionnaire contained items covering three sub-scales of civic capacity: civic drive, civic connections, and civic pragmatism. The questionnaire also had

items addressing the four integrative public leadership sub-scales: integrative thinking, integrative behaviors, integrative leadership resources, and integrative structures and processes as articulated by Sun & Anderson (2012). A Q-Sort (Brown, 1996), with 48 preliminary questions and two pilot studies were conducted to ensure validity of the questionnaire instrument. Upon completion of the last pilot study the researcher administered the final questionnaire to 31 NWLA. There were 8 females and 23 males. The average age was 39.5 years. These alumni responses were then categorized into groups corresponding to their year of participation in the NWLA. A total of 53 alumni-chosen raters' responses were received. Administration of the questionnaire followed the on-line questionnaire guidelines of Dillman, Smyth, and Christian (2009).

In keeping with the case study methodology of Yin (2008) the qualitative aspect of this study was addressed accordingly. The researcher conducted 21 face-to-face interviews with 21 NWLA alumni. There were 9 females and 12 males. The participant average age was 39.5 years. The alumni selected for these interviews were then categorized into groups corresponding to their year of participation in the NWLA. The researcher intentionally selected a minimum of three alumni from each NWLA class as a representative sample. From these interviews the researcher gained insight into the civic capacity and integrative public leadership experience of each participant, and explored the potential links between leadership development and adaptive governance.

### **Researcher Worldview**

Concerning the qualitative aspect of this study, it is important to position oneself as the researcher in terms of a personal worldview including the bracketing of personal

experiences with both adaptive management and leadership development programs. The researcher must think of herself as the human instrument at the center of the research project, between Neuman's (2006) interpretive social science perspective (ISS) and the critical social science perspective (CSS). The interpretive social science (ISS) paradigm is concerned "with how people interact and get along with each other" (Neuman, 2006, p. 88). Creswell (2013) noted that constructivism is often combined with the ISS perspective. Through this lens individuals develop subjective meanings of the world in which they live. Merriam (2009) has explained that this theory assumes reality is socially constructed. The critical social science (CSS) perspective is similar to that of ISS in that it explains the world through the perspective of the human experience (Merriam, 2009; Neuman, 2006). What makes the CSS perspective different is its goal "to critique and challenge, to transform and empower" (Merriam, 2009, p. 10). These two theories give the researcher reflective freedom to criticize when comfortable to do so and interpret when proficiency demands a less engaging perspective.

### **Case and Site**

The site for the implementation of this study was the NWLA. This one-year program was created to build the leadership capacity of Nebraska's future water leaders and to prepare participants to take active, cooperative approaches to decision making. The NWLA employs a process-based curriculum with developmental experiences and opportunities to learn from these experiences (Barbuto & Etling, 2002; McCauley et al., 2010; Newman et al., 2007; Popper & Mayses, 2007). This study included a total of 21

alumni as interview subjects, 31 alumni questionnaire participants, and 53 alumni-chosen raters.

### **Data Collection**

Quantitative data collection strategies for this study followed the recommendations of Creswell (2012). A convenience sample was taken from the NWLA because these alumni were willing and available to be studied (Creswell, 2012). In using an on-line questionnaire, the researcher used the Qualtrics™ program to administer the questionnaires on-line. University of Nebraska-Lincoln Institutional Review Board (IRB) approval of the research was granted prior to beginning the research (see Appendix F).

Alumni were notified of the on-line questionnaire via e-mail and given instructions on completing the questionnaire. Alumni were also asked to invite others with whom they have a professional relationship to rate their civic capacity abilities since their involvement in the NWLA. Alumni sent raters an e-mail invitation that included the link to a separate rater specific on-line questionnaire. All IRB protocols were followed and the anonymity of alumni and raters was ensured throughout collection.

The data was then exported from the program Qualtrics™ into an Excel spreadsheet where each participant was categorized into which year they participated in the NWLA and was assigned a coded number to secure confidentiality. From there the data was then run through the statistical software Statistical Package for the Social Sciences (SPSS). Using SPSS and Excel, mean scores were calculated for each variable. The rater questionnaire was administered and tested through the same software. The rater

questionnaire was also administered to mitigate individual influence and personal bias from the alumni.

Qualitative data collection for this study followed the recommendations of Creswell (2007) largely based on Moustakas's (1994) approach. This organized approach includes interviewing at least five to 25 participants and asks at least "two broad, general questions: What have you experienced in terms of the phenomenon? What contexts or situations have typically influenced or affected your experiences of the phenomenon?" (Moustakas, 1994; as cited in Creswell, 2013). Additional questions were selected from a bank of interview questions developed by the researcher including those that capture the quantitative aspect of participant involvement in leadership activities within the participant's organization and community. In keeping with these parameters, face-to-face interviews with 21 NWLA alumni were conducted from July 2014 to February 2015. Interviews included the pre-developed questions as well as probing questions intended to obtain a clearer understanding of the personal leadership experiences each alumnus had and how those experiences may be translated into assets beyond that of the individual and applied to the broader scope of their communities. This insight allowed for a deeper exploration of the link between civic capacity and integrative public leadership development in the context of adaptive governance.

### **Data Analysis**

The approach to quantitative data analysis proposed is based largely on the procedure put forward by Creswell (2012). Data collected from the on-line questionnaire was exported from the Qualtrics™ program into an Excel spreadsheet and imported into

SPSS. A series of paired samples *t*-test were then performed between leader and rater responses. Using the overall *n*, means and standard deviation were also calculated to explain the distribution of the data. A series of independent samples *t*-test were performed to compare raters' responses. SPSS allowed the researcher to draw multiple statistical factors and conclusions from the web-administered questionnaire.

Qualitative data was collected from the individuals described above who had participated in the first four classes of the NWLA. The researcher specifically selected at least three representative alumni from each of the four classes for the interview process. Each interview was recorded, during which preliminary data analysis began with researcher observations during the interviews. The next level of data analysis occurred during the interpretation and transcription process. The transcription of each interview was completed by a certified third party vendor, Rev.com. Each transcript was time-stamped and translated verbatim. Transcriptions of interview data were analyzed using word notepad, with the use of multiple colors and notes to decipher individual meaning. This was a direct result of Merriam's (2009) suggestion to "think of yourself having a conversation with the data, asking questions of it, making comments on it, and so on," (p. 178).

Written transcriptions were then analyzed by grouping statements into meaning units followed by development of individual themes. The researcher worked to capture the words spoken from each participant and to identify and listen for "significant statements, sentences, or quotes that provide an understanding of how the participants experienced the phenomenon" (Creswell, 2013, p. 61). While analyzing, both a visual

reconstruction of the interview as well as the physical notes taken during the interview were reviewed several times along with the transcripts themselves. The categories, or as Creswell (2013) states, clusters of meaning, were then used to compose a detailed description leading to the findings of this study. Validity was ensured through member checking (Creswell, 2013) during the interview and after transcription. As a result, alumni were offered the opportunity to review their transcripts after the initial interview. Of the 21 alumni, none utilized the member checking process. Thus, the researcher proceeded to analyze the data ensuring consistency through intensive comparison of all aspects of qualitative data analysis. This was done by validating what was observed matched the audio recording and what was audio recorded matched the transcription. The transcriptions and notes were then compared during each round of analysis to ensure the researcher captured what each participant of the interview originally intended.

### **Delimitations and Limitations**

Both the quantitative and qualitative aspects of this study provide potential limitations. The quantitative aspect, the on-line questionnaire of this study was limited due to the distribution method itself. The web provides a less intrusive, timely and cheaper option of survey distribution, but carries with it the issue of coverage issues and the highest rate of respondent error, or non-response of any survey method (Dillman et al., 2009). The use of SPSS software, although used broadly by researchers, limits the variables tested for this study.

The qualitative nature of this study limits generalizability as does the limited case size. It would not be appropriate to apply findings from this study to every leadership

development program that works to involve participants in natural resource management. It is appropriate, however, to consider the leadership experiences of the 21 NWLA alumni. The attempt to capture the essence of leadership development and its outcomes could provide categorical tips for those seeking to understand what actually happens when leaders, not simply individuals, become involved in adaptive governance in some capacity or another. Results could paint a holistic picture that would not be possible through quantitative analysis alone. Such results will serve to inform the field of natural resource management.

Researcher bias was a concern in need of constant attention. The researcher has been highly exposed to adaptive management methodology and partook in all sessions of the NWLA. Constant reflection in order to suspend prejudgment and reach new, deeper understandings was important to the overall process. The positive is that the researcher had first-hand knowledge of what leadership development programs as applied to natural resource management look like and, through this research project, was able to refresh and calculate observations of deeper connections between these civic capacity and integrative public leadership in the context of adaptive governance.

### **Data Collection and Potential Ethical Issues**

The methods selected for data collection for this research project included an on-line questionnaire and interviews with participating individuals that met the criteria of being NWLA alumni and or knowing an NWLA alumni personally, to be selected as a rater. Establishing a basis of trust between the researcher and the participants was critical to a successful mixed mode study within the case at hand. The researcher's professional

relationship with the NWLA program and its leadership simplified the process of gaining the trust of the participants. Once the participants were selected, questionnaires were distributed, interviews were conducted, data were analyzed, and data were reported relative to their experiences.

Potential ethical issues were considered and addressed during the methodological selection process. One issue that was considered was that of anonymity. Since participants were asked to respond honestly to the questions being asked of them, it was essential that they felt comfortable that their words would not harm their relationship with the NWLA and its leadership. There were several times during interviews conducted for this study that informants felt comfortable enough to say things that were not complimentary to the NWLA or to admit that they had changed their minds from their initial answer as they expanded on their own thoughts. Steps taken to address this issue included the application of a pseudonym (in the form of a number) for each informant on all data collection and analysis documents and a plan was devised for the timely destruction of the sound files containing actual voices.

Another ethical issue addressed by the researcher was the potential of heightened stress levels of participants caused by exploring their leadership personal leadership experiences. To help ease the overall stress on the participants the researcher offered to meet them in a place of their comfort such as a meeting room within their own place of work. When this was not an option the researcher specifically reserved a meeting room arranged with couches and comfortable chairs in an attempt to provide as comfortable of

possible of an atmosphere for the participants. Although the on-location meeting was provided to all participants, many chose to meet in the neutral location.

Motivational factors and an individual's intentions for participating in this study were addressed using positivity at all times. All participants appeared to be more than willing to share their individual experiences and often elaborated in detail. No incentive was offered by the researcher at any time, aside from the chance to share their story. As such all the participants willingly contributed their time. Ethical concerns for study participants were less numerous and less severe due to the nature of the trust relationship between the researcher and participants.

### **Sampling**

Participants were chosen through the use and combination of convenience and snowball sampling methodology. In the case of convenience sampling, Creswell (2012) explained, "the researchers selects participants because they are willing and available to be studied" (p. 145), in this case the NWLA. Snowball sampling was utilized for the sake of the rater questionnaire in this study. As explained by Creswell (2012) "In the case of snowball sampling, the researcher asks participants to identify others to become members of the sample" (p. 146). The criteria designed and met for the study participants included the following:

Quantitative (Questionnaire) aspect:

1. Each participant had to have been an alumni of the NWLA
2. Each participant selected 3-5 raters of their choice to complete a survey

Qualitative (Interview) aspect:

1. Each participant had to have been an alumni of the NWLA
2. Each participant had to have been willing to complete one 20-30 minute interview while being recorded

### **Questionnaire Development**

The questionnaire was developed using the on-line questionnaire guidelines of Dillman et al., (2009). The instructions were kept simple and easy to follow. The intent was to not use any extra (or unnecessary) instructions (Uskul, Oyserman, Schwarz, Spike, & Xu, 2013). This simple design made it easier for the respondent to cognitively process what was asked of them (Dillman et al., 2009). The questionnaire contained questions covering the three sub-scales of civic capacity: civic drive, civic connections, civic pragmatism; and four sub-scales of integrative public leadership: integrative thinking, integrative behaviors, integrative leadership resources, and integrative structures and processes as put forth by Sun and Anderson (2012). A Q-Sort (Brown, 1996), with 48 preliminary question to be ranked on a Likert scale of 1-7 indicating their accuracy of principle representation was administered to 24 'experts' in the topic area. Three omissions categories were created from this Q-sort.

First, 10 questions were omitted from the question bank due to less than 80% correct identification from the experts. Second, three questions were omitted from the question bank due to an average correct identification score less than 5.6 (80%) from the experts. Third, three questions were omitted from the questions bank due to possessing the lowest mean average of the specific principle in question as only 4-5 questions per principle in questions proceeded to the final survey. The internal reliability for the all the

scales was .66 or greater. Nunnally and Bernstein (1994) concluded that acceptable minimum reliability (Cronbach's alpha) for measurement scales should be .70. From these results, the researcher then selected the 31 best questions from the Q-Sort for a pilot study. This pilot study occurred in a classroom of 32 graduate students at the University of Nebraska-Lincoln.

The pilot study yielded the omission of one other question due to a misunderstanding of wording. This pilot study also yielded the rewording of several other questions. A second pilot study was then conducted and administered to 30 participants from varying professions, and yielded a Cronbach's Alpha of .80 or higher for each of the variables. From this pilot study the researcher then administered the final questionnaire to 31 NWLA alumni and 53 raters of these participants of the individual participants' choice.

## **Interviews**

The methodology of the interview process followed what Merriam (2009) referred to as a semi-structured interview (p. 89). The researcher developed a specific list of interview questions asked of each participant. During the course of each individual interview, questions were expanded upon based on the individual circumstances. The wording of each question is provided in the appendix; however, different wording approaches were used based on the participant understanding and engagement. Probing questions were also asked depending on the answers and context of each question. It was especially common to rephrase questions several times when confusion from the initial wording resulted. The researcher also asked questions differently or included additional

questions when nonverbal signals were present that suggested confusion. Merriam (2009) supported the dynamic elements of this method: “This [semi-structured interviewing] format allowed the researcher to respond to the situation at hand, to the emerging worldview of the respondent, and to new ideas on the topic” (p. 90). The freedom to re-phase questions and ask different probing questions based on individual responses was of particular importance to the researcher’s interviews with the individual alumnus to understand each leadership experience undergone by each alumnus.

## **Chapter 4-Findings**

Due to the mixed mode design of this thesis, the data is presented in two categories. The design of this research project included participants from varying economic classes, professional experiences, and unique perspectives on civic capacity and integrative public leadership experiences. As such, the data analysis section is organized accordingly.

### **Qualitative Findings**

This section of analysis is based on the recommended instrumental case study process (Yin, 2008) including the researchers' experiences, participant experiences, and a summative analysis of themes that emerged from interviews. Within this analysis, prominent similarities and differences in the experiences of each participant were also analyzed.

### **The Researcher's Experience**

The researcher held leadership roles for the NWLA throughout the duration of this study. In that leadership role, it was the researcher's responsibility to help facilitate the separate sessions, including activities and discussions focusing on adaptive governance, leadership, collaboration and innovation. Those experiences complicated efforts to suspend preconceived notions or ideas about civic capacity and leadership itself. These same experiences provided a heightened ability to understand civic capacity and leadership complexities that may have gone unnoticed from a different perspective. One factor that assisted the researcher's view of the leadership experiences and civic capacity results was the direct contact with the study participants from the standpoint of a

researcher rather than a facilitator or equal. This perspective aided in the separate conceptualizations of any interactions with study participants prior to data collection.

The researcher's data gathering experiences for this project included multiple incidents of phone and e-mail correspondence with alumni. Both the interview and web-based questionnaire involved multiple modes of communication. The typical communication was a phone call followed by an e-mail. Successive communication involved several emails and voicemails between the researcher and participant. These two communication modes were the only two used to establish contact for the interviews.

For the qualitative interviews themselves the researcher arranged for a meeting either in the town and workplace of the participant or, based on participant preference, the researcher held interviews in a small collaboration room in an academic building. In almost every case the alumnus was pleased to see the researcher and was willing to share their leadership experiences with the NWLA openly. Although the environments in which the interviews were conducted were often familiar to the researcher, each individual experience and story was unique. The meeting rooms had neutral colored walls, large tables for discussion purposes, a pull-down screen for presentations and comfortable chairs. The neutral meeting location, the collaboration room was comfortable: walls filled with art from around the globe, a book shelf full of books, a coffee table adorned with peer-reviewed journals and comfy couches and chairs for relaxation and thinking. The research conducted felt natural in these settings.

In general, each interview lasted as long as expected based on the responses of the participant which usually meant 20-30 minutes. The questions provided in the Appendix

of this study set the groundwork from which to start. As the researcher worked through the semi-structured questions, she was sensitive to the time-limited schedules of the alumni since interviews took place as a scheduled meeting or after typical work hours. As a result, there was a feeling that there may have been more to their story if time had not been a limiting factor. Regardless, interviews were completed accordingly, and based on data analysis, the leadership experiences of those involved in a natural resources leadership development program were explored for the cases included in this inquiry.

The researcher was successful in recruiting alumni thanks to the directors and leadership of the NWLA, all of whom were more than willing to allow the researcher to interact with the alumni of the academy. For each of the four classes of the NWLA a minimum of three alumni representatives were selected to ensure a representative sample of the entire NWLA and all those who participated. Once alumni were selected, the researcher extended an informational e-mail regarding the terms and conditions of participation in this study. Upon response to the initial terms and conditions e-mail, indicating an interest and understanding of the terms and conditions of the study the researcher began communication with the participant to establish a meeting time and place for the interview. The e-mail correspondence between the researcher and participant allowed for the participant to be relaxed and comfortable in their own surroundings. Ultimately, 21 NWLA alumni agreed to participate in the study. Of the 21 alumni, 8 were from class I, 6 were from class II, 4 were from class III, and 3 were from class IV.

There were many differences that existed between the researcher and each participant. These differences included gender, professional roles, subject knowledge and age. To overcome this limitation, the researcher made a genuine attempt to build trust with the participant in order to alleviate these potential preconceived notions as barriers to this study.

### **The Alumni Experience**

The data analysis procedures utilized by the researcher kept to those outlined in the research methodology section of this thesis. Utilizing a careful process of interviewing, transcribing, organizing the data, through color-coding significant statements utilizing the three sources of the researcher, participant, and literature (Merriam, 2009), significant statements were identified. These significant statements were then placed into categories organized topically (Yin, 2008) to reconstruct the leadership experience through the eyes of the participants (Creswell, 2007), the leadership experience of 21 NWLA alumni is described here. The 21 alumni in this research study consisted of 9 females and 12 males and had an average age of 39.5 years. Eight were from class I, 6 were from class II, 4 were from class III, and 3 were from class IV. In an effort to protect their real identities each alumnus was assigned a number and was encouraged to give the most honest description of their leadership experiences during and after the NWLA. What follows is a detailed description based on each alumnus' experience as reported in their interview, and a description of the principle themes that emerged.

**Alumnus 1.** At the outset of their time in the NWLA, Alumnus 1 had recently moved to Nebraska and had been living and working at her current job for a little more than a year. She expressed a big take away experience for her was the knowledge that she acquired in both water resource management and leadership skills while participating in the NWLA. She also felt that she was able to have more input in the committees she serves on. Alumnus 1 mentioned she now has the confidence to help her speak out more and put different thoughts and ideas forward that, prior to the NWLA, she would not. She has become more open minded as well, stating it has benefited her in her work place and the committees she serves on to see the bigger picture and understand where others are coming from. She now actively incorporates confidence building activities into her everyday life to allow herself and her abilities to grow. She credited her experience with the NWLA with making her a little more willing to both feel the need to and actually reach out to others about the program as well as what she learned there.

**Alumnus 2.** Alumnus 2 had participated in the NWLA during a very busy time in her life in which she was hoping to get involved in more civic activities. She emphasized that attending the NWLA increased her desire to get involved on a board of some kind. She mentioned that the leadership skills acquired were beyond water-related aspects and she has sense applied them to her job, her home life, and in working with others. Collaboration now plays a vital role in her career where she has directly applied some of her leadership skills acquired to help reach consensus. Alumnus 2 described that from the NWLA she learned "...a good leader should figure out how people you work with communicate, how they like to receive and give information." She has made a larger

attempt to see things from other people's perspectives and applies what she learns to find some common ground during collaborative efforts. In addition, her meeting planning has changed since participating in the NWLA. She finds herself thinking about goals, objectives, and outcomes of meetings she is coordinating, rather than simply getting together to talk about things. In addition, she noted that her confidence has increased based on the feedback of others she received, "I actually feel more involved because people think I can do this, I can be involved because people trust me." Along with this new found confidence Alumnus 2 discussed a moment when she realized that sometimes being a good leader means knowing when to let go. "I don't think without the Leadership Academy, I would have been able to do that, realizing that sometimes the best way to move forward is to let something go."

**Alumnus 3.** Alumnus 3 became involved with the NWLA because his boss suggested that he would benefit from the program. He mentioned during his interview that the NWLA made him think that he needed to give something back to his community, has made him more aware of the entire process of communication, and has helped him learn to compromise more often. He also noted that the NWLA opened the door to several professional relationships that would not have otherwise been attained. Alumnus 3 noted the importance of "flipping the switch" between being the leader and the follower when necessary. He explained,

I think an effective leader has to be able to differentiate when they need to back off and be a follower at times, or they have to realize the moment, seize that leadership opportunity, and step up in that position.

He also described the importance of entering a collaborative effort with an open

mind, “It’s important that we realize that everyone has value, everyone has an opinion and everyone has professional and knowledgeable experiences behind them and that the only way that we’re going to bridge the gaps is to listen.” He observed that since participating in the NWLA, he is more likely to include people from several expert areas that he would not have considered before. Alumnus 3 discussed that going through the NWLA made him feel that his profession is worthwhile and it has ignited a passion for both the NWLA and the natural resources field.

**Alumnus 4.** Alumnus 4 had worked in her position for some time before being asked to participate in the NWLA. She is actively involved in her community by educating local schools on water quality issues. She said that since participating in the NWLA she is better able to relate to others and help them accomplish their part. She described her biggest takeaway from the program as the connections she made within the NWLA and to those in communities where programs met. She explained, “I need to step back and get other people involved. Otherwise, I don’t have that networking and I don’t have that other input, which can really increase the quality of a project.” She emphasized how helpful the networking of the NWLA was for her and that new doors that are now open because of those contacts.

**Alumnus 5.** Alumnus 5 was active in the NWLA while simultaneously serving on a community board. He discussed the impact of the knowledge that he gained from NWLA and how that has since made his discussions more rewarding. Several of the relationships made during the NWLA benefitted Alumnus 5 and he has since utilized them for personal benefit. He has implemented a conflict management activity during a

board meeting with several stakeholders to get everyone involved and on the same page. He said, “It’s just working with people with different ideas and trying to blend that to make a decision that everybody can respect in the end.” Alumnus 5 indicated the importance of knowing when to walk away as a leader. He noted that you cannot win every battle, but you can listen to where the other person is coming from to get a better idea of where you can compromise.

**Alumnus 6.** Alumnus 6 was involved with the NWLA because of his interest in the subject area. He originally was more interested in the water aspect, but became equally as affected by the leadership component. He explained, “It gives you a different perspective on things and I think it definitely helped me understand all the issues a little bit better.” He credited his experience at the NWLA with fostering the realization that he does have something valid to offer in discussions. He also mentioned that since the NWLA he is more open to the perspectives of others and is more willing to listen. He also said that he has been more involved with his community through volunteerism on boards and at his church since participating in the NWLA. He noted, “Just doing a little bit extra to give back to your community is valuable. There’s a personal satisfaction that comes with seeing other people, enjoy something that you’d had a role in putting together or benefitting from it.”

**Alumnus 7.** Alumnus 7 was engaged in the NWLA during a time of job transition. She became involved for her own benefit as she already served on many boards regarding water and natural resources issues. Her goal was to build a foundation for Nebraska water and to learn from the experts in the field to make her a better leader in

her current job. Since then, Alumnus 7 has become more confident in her skills and knowledge. Since her experience in the NWLA, Alumnus 7 has realized the importance of all the different water entities in Nebraska and has since worked on creating conference opportunities to educate people and to get more people to think about the “out of the box” concepts from the NWLA.

**Alumnus 8.** Alumnus 8 joined the NWLA with a position within the water management area and has since moved into a supervisory role within his company. In terms of supervision, Alumnus 8 mentioned how helpful it was to have been taught how to encourage someone to develop and grow and to use a strength-based approach in the NWLA. Since the NWLA, he has maintained active engagement in the political issues of water, including not only attending legislative hearings, but also contributing to these hearings as a speaker. He says that the NWLA has helped shape his overall leadership “...in terms of just a more deliberative process of doing inventories or categorizing in terms of skills.” He expanded on the concept of putting himself in the shoes of others to fully understand what their perspectives are. He also elaborated on the relationships he built during the NWLA and how they have helped him grow as an individual. He is hoping to get more involved in the community as time goes on and, at the very least, to inspire others to get involved with the NWLA.

**Alumnus 9.** Alumnus 9 joined the NWLA in hopes of expanding his personal knowledge and to improve his leadership skills. Overall he says the NWLA has helped him engage in civic activities, including several advisory boards and councils, and service as president of several different charitable groups. He also observed that the NWLA

taught him to take into account other people you are working with and to let them explain their point of view. Since participating in the NWLA, he has been a part of several planning committees in which he describes learning so much from others. Alumnus 9 mentioned the importance of knowing when to face an issue as a leader or when not to.

He explained,

It's definitely something that you need to be comfortable enough because there are certain situations when that input is needed, but others its best just to back off and let the group maybe kind of take leadership as a whole instead of trying to push them in a certain direction.

He now handles situations and individuals differently than he would have, by attempting to figure out what it is that motivates them on a day-to-day basis. Chief among his experiences was motivation and the building of his own confidence—something that he has since taken with him and shared with others.

**Alumnus 10.** Alumnus 10 has been a long time resident of Nebraska and has always worked in the natural resources field, but never had much formal training on the matter. Through word of mouth, she became involved with the NWLA. Since her involvement with the NWLA she is more comfortable with the position she holds and those that she collaborates with on a daily basis. She explained, “I’ve worked on making relationships with people the way I should have been all along, but wasn’t.” She mentioned that if you give people long enough they will come to their own conclusions without you butting in with your own two cents. Since the NWLA she has put herself out there and gone the extra mile by contacting others and doing additional research on topics that help with the discussions that occur at her job. She has gained confidence in her ability to help others and her subject matter knowledge. As a result, she is more active in

discussions when they occur.

**Alumnus 11.** Alumnus 11 had been engaged in leading several workgroups and initiatives at her job when she learned of the NWLA. She has since continued to stay engaged in those initiatives and other organizations. She stated that she is now more willing to state her opinions and put her ideas out there. Since participating in the NWLA, she is more willing to take charge of a situation rather than to wait for someone else to take the lead. Alumnus 11 mentioned the affect the personality test had on her and how she is now more understanding of where others may be coming from. She said, “I’ve noticed that I really use that a lot in identifying, okay, well, you’re an extrovert, and I am not. This is kind of how we should maybe communicate a little bit better.” She has changed her thought processes of dealing with others in collaboration and works harder to understand their point of view. “I’m trying to be a lot more respectful of others and of their ideas and what they bring to the table.” The interactions with others at the NWLA has enabled her to broaden her networks as well.

**Alumnus 12.** Alumnus 12 embarked on the NWLA because he had taken another leadership course and was interested in getting a better understanding of the concept. He stated that the knowledge gained from participating in the NWLA helped him to be more confident in the skills that he has to offer. Since the NWLA he has been more willing to be an active voice at local Natural Resources District (NRD) meetings. He has also been more willing to collaborate with people on different issues as well. He stated that he often rephrases questions or perspectives to gain a deeper understanding of the current conflict. Alumnus 12 mentioned how important the networking and the ability to discuss several

controversial issues in the safe space of the NWLA has helped him to discuss these matters more so with the public.

**Alumnus 13.** Alumnus 13 was removed from the natural resources profession but was actively engaged in the leadership field with an expertise in conflict resolution. He stated that his interest in the NWLA had been very important to both his personal and professional development. Since the NWLA he has become involved with two new grant funded projects. He explained, “Both of these opportunities, I am convinced, would not have been possible or productive without my experiences at the NWLA.” He has since applied his leadership skills to build a more collaborative environment within his workplace. He noted, “Given my NWLA experience, collaborative leadership is particularly important in that cross-disciplinary environment.” Alumnus 13 has involved other stakeholders who can provide different knowledge sets in collaborative processes since his experience at the NWLA. On this note he elaborated, “The intersection between science and policy has been the greatest help awakening in terms of needed collaboration within the area of water resources.” Overall alumnus 13 described his experience at and since the NWLA as beneficial. Alumnus 13 said, “I feel more confident in my technical knowledge about water, more skilled in leadership, and more inspired to make a difference in my community and in the world.”

**Alumnus 14.** Alumnus 14 was engaged in the NWLA just prior to transitioning jobs. Since her time at the NWLA she has left Nebraska, but has remained active in natural resource policy. She is now more aware of the issues at hand and the best way to approach these issues. Alumnus 14 has applied the leadership skills from the NWLA to

her current work environment and personal life. She has also been able to recognize several of these skills in others and to work with them to maximize their potential whenever possible. The collaboration process is a large part of her position when she works towards a common goal. This was something that was of keen personal interest while participating in the NWLA. The NWLA left a lasting impact for her on the topics of media relations and the importance of effective communication with others.

**Alumnus 15.** Alumnus 15 has been a resident of Nebraska her entire life and has held the same job position for many years. She participated in the NWLA for her own personal growth in the knowledge of leadership. She mentioned the impact of the Myers-Briggs personality assessment and how powerful that has been for her following participation in the NWLA. She has used information from the personality assessment many times to self-reflect as well as to understand the perspectives of others, “I am more visionary than anything else. I can see the end and I can see how to get there, but when it comes to the tiny mundane details, then I look to other people for support.” She has also utilized the mindset of not always taking the lead. She explained, “Leadership isn’t always a matter of standing up and having people follow me. It’s sometimes being a great follower, means being a great leader. That’s changed my perspective.” When working with others she makes a concerted effort to listen to everyone’s view and to involve others whenever possible. “I’ve learned that two and three heads are better than one.” Since participating in the NWLA, Alumnus 15 thinks more outside of the box and tries to find new and different ways of thinking of the same situation. She explained,

It’s just the idea of let’s think of other ways, not necessarily meaning we have to do them but at least we can think of other ways and talk about other ways. I don’t

apologize for having those kinds of ideas and when I hope it does is I hope it inspires other people to say, Well, she took that risk and she's still alive and people still seem to like her a little bit. Maybe I can take that risk too.

Through the education of leadership and water issues and the connections made therein, Alumnus 15 has now expanded her network and plans on leveraging it as she becomes more involved in her community.

**Alumnus 16.** Alumnus 16 has lived in the same area of Nebraska his entire life and had recently been promoted into a new position at work which aided in his decision to attend the NWLA. During the NWLA, he learned just how passionate he was about being involved in natural resource issues in his community. He stated, "NWLA was an eye opening experience for me initially for me to get my foot in the door and make a difference." Since the NWLA, Alumnus 16 has been elected and appointed to various board positions. He works hard to get to know others on a one-on-one basis by placing himself on their level, whether that means a ride together or a cup of coffee. These actions have augmented his collaboration efforts and enabled him to make a connection with these individuals. As his connection and knowledge grows he has had an increased desire to take on leadership roles and to be actively involved. He explained,

The NWLA introduced a lot of that stuff to me. Whereas, before maybe I would have been blind to some of that and maybe didn't consider it. For that, the Water Leaders Academy really got me started on the right path in several ways.

His sense of accomplishment and the ability to make positive change is what drives his will to be involved. He has utilized many innovations to secure funding for several projects,

I'm always finding innovative ways to continue to evolve and come up with solutions. Always trying to improve. Everything can be improved to a certain

extent, being creative and coming up with some of these innovative ways to improve things is important.

It is important for Alumnus 16 to think outside the box on a state and national level and to get all of those stakeholders involved whenever possible.

**Alumnus 17.** Alumnus 17 joined the NWLA because she was engaged in several collaborative efforts in the position that she held at the time and still currently holds. The networks that she was exposed to in the NWLA have been far reaching for her and have “re-lit” the fire to get involved. Since the NWLA she has been more confident in her abilities as a leader and collaborator. She has become more aware of how she reacts to others and has tried to maintain an open mind,

The reigniting the belief in being a leader and thinking about people, trying to be a bit of an empathetic person, I think the academy really helped bring that out into being even a better listener in those situations and finding those linkages.

This belief allowed Alumnus 17 to be more positive in her day-to-day interactions with others. Since the NWLA she is actively thinking of her leadership, specifically transformational leadership. She explained,

The transformative leadership is important and really trying to leave that in the forefront of my mind and think about every situation, whether it's with the public and we have them in kayaks or in an uncomfortable board room or finding a grant opportunity and all of that is thinking about how you need to be a leader but allow the people around you to expand that leadership.

Since the NWLA she says she is better able to understand issues and to feel good about her personal leadership capabilities. Alumnus 17 stated she uses her leadership skills beyond her job and within her family as well to navigate difficult times. She has also become more engaged from a political perspective as a result of her increased confidence.

**Alumnus 18.** Alumnus 18 was involved in the NWLA as part of his job. Since his

time in the program he has taken on more supervisory roles in projects. He explained, “It has helped me advance in my career a little bit and gain a little more responsibility that involved some more work projects that I may not have been assigned to if I didn't go to this NWLA.” He states that he now sees things differently and is more open to other people and their viewpoints, “The NWLA has really opened my eyes as far as listening to people and talking with them, listening to their ideas and communicating and basically coming to agreements overall.” Since the NWLA, Alumnus 18 has become more active in volunteer community work and is no longer afraid of getting involved.

**Alumnus 19.** Alumnus 19 was a Nebraska resident and has interest in working in the water resource field in the state, but was involved in the NWLA when he was not living in the state. Since participating in NWLA, he has become more active in municipal planning and is pursuing board membership. He stated that he has been more aware of his own leadership style when engaging with coworkers, friends and family members since the NWLA, “Everybody fits the roles of their personality. You’ve got the doer and more the thinker, detailed-oriented people versus large-scale, bigger-picture type of people. I don't know. I've just noticed the differences in interpersonal play a little bit more.” Since the NWLA Alumnus 19 has engaged in more brainstorming with ideas that are 180 degrees different from the typically proposed methods, which resulted in new discussion on an old problem. The new discussion has sparked various ideas from others in the collaborative group as well.

**Alumnus 20.** Alumnus 20 engaged in the NWLA because of his interest in the subject matter. Since then he says he hasn't been able to stop promoting the program and

what it has to offer to the water resource field. He said,

I try to bring it up in just general conversation, getting people engaged. Then I talked about the NWLA, of what it can do, and educate people in Nebraska to maintain water together so we have it for a long time.

He says that he now constantly asks questions of others in order to gain a deeper understanding of where they are coming from.

I'm the one that's going to ask a lot of questions, because I'm going somewhere with it. I think that's my form of leadership is to challenge you to educate me. Sometimes when people just talk things through, it really comes to life. They become creative at that point too because you're challenging their mind, but they're challenging yours with how are you going to ask the question.

Since the NWLA, Alumnus 20 reports having been more engaged at board meetings and has stuck around after meetings to make connections through discussion with those board members.

**Alumnus 21.** Alumnus 21 became engaged in NWLA due to his current job and personal interest in the Academy. He was interested in what the NWLA could teach him in his efforts to improve his leadership. He said he was able to take many of the leadership skills from the NWLA and apply them directly to his job. His job requires him to collaborate often and since the NWLA he has been a better listener. He explained,

It's trying to proactively listen and understand and maybe find some common ground, see if there's a way we can solve some of these problems instead of just kicking the can down the road, which is what get pretty good at.

Since NWLA, his leadership style has become more interactive thanks to his understanding of diverse personalities. He explained, "I'm trying to be more proactive instead of reactive in leadership style, to really just realize that other people are motivated by different things and try to understand and approach them in whatever style of

communication that they need.” He is currently seeking to be more involved in his community.

### **Individual Themes**

Careful analysis of the 13 themes that developed from a vigilant coding process of transcribed alumni interviews are included the following list. Each theme is accompanied by a representative quote from an alumni for the sake of clarity, consistency and value. It should be noted that simply because a theme shows up on this list that does not mean every alumnus conveyed it during their interview, but rather that, based on the researcher’s qualitative analysis of frequency of use, strength of conviction and detail of elaboration the following clusters of meaning (Creswell, 2013) were prevalent enough to be considered as a theme of this study.

*Knowledge*—Several alumni expressed the value of leadership knowledge and its application to the water resources field. “I think the leadership skills that I've gained were more in terms of the information.”

*Confidence*—Alumni expressed varying levels of confidence following participation in NWLA. Confidence referred primarily to speaking up and engaging in discussion more. “That just gives me like I said, the confidence that helps me to speak out more, maybe put some different thoughts forward that previously hadn't been spoken about.”

*Community Involvement*—Most of the alumni expressed an increased urge to become involved in community activities and boards. Several alumni had already become engaged in new boards or activates and credited the involvement to their participation in

the NWLA.

Since I've been at the academy, I had a lot to learn, but part of that learning experience was becoming involved. I learned through the academy again that becoming involved only broadens the horizon for you as far as what you can do.

*Open Mind*—Open mindedness was mentioned several times as a part of the alumni experience. It was often spoken in relation to understanding the views of others and showing empathy towards those involved in a collaborative effort.

What I learned most about leadership at the academy was how to treat people and that other people have different ways of learning and seeing things. My way isn't always right. There might be another way and I think that became more obvious to me going through the program, just to be more open and other people do things differently, see things differently. They may get the job done in a different way. But I think it helped me realize that and to be more open to suggestions and realize that there's other ways to communicate and there's other styles of leadership, too.

*Followership*—The idea of followership emerged often during this study. Alumni often expressed this in the context of knowing when to take an active leadership role and when to step back and either listen or allow another individual to take up the mantle of leadership. It was expressed that learning when to follow was an important aspect of leadership.

Sometimes as a leader, you have to decide that what you're doing isn't going to work. You have to admit that, and say, 'Here's somebody who is getting what you want to do to work.' I think maybe without the Leadership Academy, I wouldn't have maybe been able to do that. Realizing through the Leadership Academy that sometimes the best way to move forward is to let something go.

*Engagement of Others*—Engaging others was mentioned by several alumni. This concept was mentioned primarily as an aspect of expanding the collaboration process. A direct relationship between the collaborative effort and getting the right people engaged was described.

The Water Leaders Academy definitely makes you want to step out into the general public and make them a little more curious about things. The academy just makes you a little more willing to reach out and feel the need to do so.

*Transformational Leadership*—Alumni described the use of several aspects of transformational leadership skills since their participation on the NWLA. These aspects included: motivating others, detecting leadership skills in others, asking questions, and critical self-reflection. “Things like the four I’s. It’s something that’s not in the front of my mind, but it’s something that I learned and I do have instances where I used it, so it’s stuck with me.” *Individualized Consideration* was particularly noteworthy. This aspect of transformational leadership was emphasized heavily by alumni. Mentions of adjusting alumnus leadership approaches to a specific person were numerous. Alumni also described many instances when they have used this concept and how it benefitted them.

“Since I’ve been in the academy, I try to do a much better job about getting to know that person. What are they interested in? What projects do they most want to work in? Where would they excel? How do they communicate? Would they prefer if I just send them an email? Would they prefer if I talk to them on the phone?”

*Communication*—Communication was a concept raised by alumni. This is defined as the ways in which alumni communicated to others and how others communicate with them. This theme was primarily prevalent when discussing issues in relation to others.

Working in a cross-disciplinary team has been both a challenge and a blessing. I love the ideas that different team members bring to the conversation and I think I listen better. The more I can listen with a nonjudgmental ear to all perspectives and persons, the better I am going to be as a leader.

*Networking*—Networking was a common theme during alumnus interviews. This concept was mentioned often as a method of opening new doors within the water

resources field in the state of Nebraska while teaching who the leaders were within this field. Alumni attributed countless success and communications to the connections made with others while engaged in the NWLA. “I really use the networking more than anything else. I’ve got to say you really introduced me to some wonderful people in the community.”

*Personality*—The Myers Briggs personality test was mentioned regularly by alumni. They noted that they used this test to learn more about themselves as well as those around them. Alumni noted being able to understand personalities as having improved many of their collaborative efforts and understanding of others.

I still don't know that I completely understand collaboration and how it's supposed to work because it feels like its very personality driven. Maybe that's the biggest thing you learned in the process is that there are different personalities and different personalities approach things much differently.

*Personal Growth*—Several alumni noted a change in their leadership style and the way they interact with others. The alumni indicated a level of personal awareness of themselves that they did not have prior to the NWLA.

I think I've been largely more positive, so there's an attitude change. I'm positive not only in my individual capacity, individual leadership capacity, but also in the number of leaders and the types of leaders that are out there and what they can gain from the academy.

*Teamwork*—The element of teamwork was commonly brought up during interviews. Alumni attributed the success of collaboration to understanding the importance of working together on a topic. It was also mentioned that more is not always the answer. “I’ve learned that delegating is important. I’ve learned that two and three heads are better than one, but seven heads might be too many.”

*Innovation*—Innovation was mentioned regularly by alumni—especially through the process of idea proposal during brainstorming. Alumni noted how important new, out of the box ideas were to a collaborative effort. It was also noted that following participation in the NWLA this behavior had increased, and several no longer were afraid to propose such ideas.

You have to be able to think outside the box, understand all areas, and individuals, and stakeholders in a certain situation, and be able to listen to all of those people, and come up with a creative solution to try and make a difference.

### **The Leadership Experience of Alumni**

Alumni of the NWLA often learned about the program from work or through a friend. Their interest extended from a motivated and intense feeling of wanting to better their leadership skills and knowledge of water resources in the state of Nebraska. Typical reasons for enrolling in the NWLA included the desire to become better leaders, gain a promotion, understand themselves better, or to become more involved with natural resources issues. An increased subject matter knowledge aided in the participant's confidence. This newfound confidence allowed alumni to become more aware of their leadership skill and how they use them. These leadership skills and expressions of confidence have since translated into an increase in community involvement. Additional benefits to alumni included an increase in their professional networks, perspectives, and willingness to reach out to others.

### **Quantitative Findings**

There were a total of 84 on-line questionnaires completed. Of the 84, 31 were from NWLA alumni and 53 were from selected raters of NWLA alumni. Of the 31

NWLA alumni 8 were female and 23 were male, with an average age of 39.5 years. These 31 alumni included 9 alumni from class I, 6 alumni from class II, 5 alumni from class III and eleven alumni from class IV of the NWLA. NWLA alumni were notified of the on-line questionnaire via e-mail. NWLA alumni then sent raters an e-mail invitation that included the link to the separate rater on-line questionnaire. During data collecting all IRB protocols were followed to ensure the anonymity of both NWLA alumni and raters. The on-line questionnaire consisted of two elements. The first element was civic capacity (Sun & Anderson, 2012) which is comprised of three sub-scales: civic connections, civic drive, and civic pragmatism. The second element was integrative public leadership (Sun & Anderson, 2012) which is comprised of four sub-scales: integrative behavior, integrative thinking, integrative leadership resources and integrative structures and processes. The on-line questionnaire consisted of 31 questions answered using a 5-point Likert scale (1-5) to test these seven sub-scales.

The internal reliability for all scales was .80 or greater. The acceptable minimum reliability (Cronbach's alpha) measurement scale should be .70 as concluded by Nunnally & Bernstein (1994). Internal reliabilities are reported in Table 1.

Table 1. *Internal Reliabilities ( $\alpha$ ) for NWLA Survey Scales*

<b>NWLA Participant</b>		<b>Rater</b>	
Civic Connections	.94	Civic Connections	.93
Civic Drive	.95	Civic Drive	.94
Civic Pragmatism	.90	Civic Pragmatism	.90
Overall Civic Capacity	.96	Overall Civic Capacity	.96
Integrative Behavior	.91	Integrative Behavior	.85
Integrative Thinking	.86	Integrative Thinking	.88
Integrative Leadership	.84	Integrative Leadership	.84
Resources		Resources	
Integrative Structures	.81	Integrative Structures	.82
& Processes		& Processes	
Overall Public	.95	Overall Public	.96
Leadership		Leadership	

### **Civic Capacity and Integrative Public Leadership-NWLA Alumni Perspective**

A series of descriptive statistical analysis approaches were conducted to establish a baseline measurement for the use of civic capacity. NWLA alumni frequently utilize civic capacity in collaborative civic issues ( $M=3.64$ ,  $SD=0.94$ ). Results are summarized in Table 2.

Table 2. *Results of Descriptive Statistics of NWLA Alumni Civic Capacity Ability After the NWLA (N=31)*

Civic Capacity Component	M			Skewness		
	M	Std. Error	SD	Skewness	Std. Error	Variance
Civic Connections	3.77	.173	.962	-.449	.421	.824
Civic Drive	3.61	.175	.974	-.459	.421	.968
Civic Pragmatism	3.55	.159	.883	-.357	.422	.787
Total Civic Capacity	3.64	.169	.940	-.422	.421	.860

A series of descriptive statistical analysis approaches were conducted to establish a baseline measurement for use of integrative public leadership. NWLA alumni frequently demonstrated integrative public leadership ( $M=3.88$ ,  $SD=0.91$ ). Results are summarized in Table 3.

Table 3. *Results of Descriptive Statistics of NWLA Alumni Integrative Public Leadership Abilities After the NWLA (N=31)*

Public Leadership Components	M	M Std. Error	SD	Skewness	Skewness Std. Error	Variance
Integrative Behavior	3.79	.161	.897	-.540	.421	.809
Integrative Thinking	4.05	.152	.846	-1.088	.421	.718
Integrative Leadership Resources	3.67	.182	1.016	-.373	.421	1.045
Integrative Structure & Processes	4.00	.294	.883	-.754	.421	.788
Total Public Leadership	3.88	.197	0.911	-.689	.421	.840

A series of Pearson correlation analyses were conducted to compare how civic capacity and its three sub-scales of civic connections, civic drive, and civic pragmatism correlate with the two integrative public leadership sub-scales of integrative leadership resources and integrative structures and processes. There are statistically significant correlations between civic capacity, civic drive, civic connections, civic pragmatism, integrative leadership resources and integrative structures and processes. Civic capacity and integrative leadership resources are significantly correlated,  $r=.91, p<.001$ . Civic capacity and integrative structures and processes are significantly correlated,  $r=.79, p<.001$ .

Results are summarized in Table 4.

Table 4. *Descriptive Statistics and Correlation Matrix for Civic Capacity, Integrative Leadership Resources, and Integrative Structures and Processes from the NWLA Alumni Perspective (N=31)*

	M	S.D.	1	2	3	4	5	6
1 Total Civic Capacity	3.64	.94	(.95)					
2 Civic Drive	3.61	.97	.90*	(.89)				
3 Civic Connections	3.77	.96	.89*	.68*	(.95)			
4 Civic Pragmatism	3.55	.88	.88*	.70*	.68*	(.89)		
5 Integrative Leadership Resources	3.67	1.02	.91*	.74**	.90*	.77*	(.84)	
6 Integrative Structures & Processes	4.00	.88	.79*	.68*	.62*	.84*	.73*	(.80)

*Note. Reliability coefficient estimates ( $\alpha$ ) are in Parenthesis along diagonals. \* $p < .001$  (Two-tailed test).*

A series of paired-samples *t*-test were conducted to compare NWLA alumni pre-Academy and post-Academy civic drive abilities. This is the only subcategory of civic capacity for which data from both pre-Academy and post-Academy was available. Civic capacity was operationalized in the pre-academy assessment as an openness to collaborating for community change, and recognition and pursuit of collaborative opportunities irrespective of existing resources such as time, money, personal support and/or technology. There was a significant increase in NWLA alumni civic drive from pre-Academy ( $M=2.58$ ,  $SD=.77$ ) to post-Academy ( $M=3.61$   $SD=.97$ );  $t(30)=5.11$ ,  $p=.000$ ,  $d=1.17$ . Results are summarized in Table 5.

Table 5. *Results of Paired Samples t-Test Comparing Alumni Civic Drive Ability Before and After the NWLA (N=31)*

Civic Drive	Pre-Academy		Post-Academy		Diff.	<i>t</i>	df	Sig.	Cohen's <i>d</i>
	M	SD	M	SD					
	2.58	.77	3.61	.97	1.03	5.11	30	.000*	1.17

\* $p < .001$ .

### **Civic Capacity and Integrative Public Leadership-Raters' Perspective**

Multi-rater feedback on NWLA alumni civic drive and integrative public leadership is another way to gauge the impact of the NWLA on alumni, and another means of assessing the achievement of NWLA goals. It is important to use multiple sources of data when assessing leadership abilities to avoid problems associated with self-report bias and social desirability issues (Donaldson & Grant-Vallone, 2002). Fifty-three raters responded to invitations from NWLA alumni to rate their civic capacity and integrative public leadership after participating in the NWLA. A series of descriptive statistical analysis approaches were utilized to analyze the NWLA alumni ability post-Academy to engage in civic capacity and integrative public leadership behavior from the raters' perspective.

A series of descriptive statistics were conducted to establish a baseline measurement of NWLA alumni civic capacity from the raters' perspective. NWLA alumni frequently utilize civic capacity in collaborative civic issues ( $M=4.20$ ,  $SD=0.78$ ) post-Academy. Results are summarized in Table 6.

Table 6. *Results of Descriptive Statistics of Raters' Perceptions of NWLA Alumni Civic Capacity Abilities After the NWLA (N=53)*

Civic Capacity Component	M	Std. Error	SD	Skewness	Std. Error	Variance
Civic Connections	4.25	.686	.750	-.648	.327	.565
Civic Drive	4.14	.111	.803	-.765	.327	.648
Civic Pragmatism	4.15	.100	.783	-.583	.329	.535
Total Civic Capacity	4.20	.299	.779	-.665	.328	.583

A series of descriptive statistics were conducted to establish a baseline measurement of NWLA alumni integrative public leadership from the raters' perspective.

NWLA alumni frequently demonstrate and incorporate integrative public leadership ( $M=4.36$ ,  $SD=0.72$ ) post-Academy. Results are summarized in Table 7.

Table 7. *Results of Descriptive Statistics of Raters' Perceptions of NWLA Alumni Integrative Public Leadership Abilities After the NWLA (N=53)*

Public Leadership Components	M	M Std. Error	SD	Skewness	Skewness Std. Error	Variance
Integrative Behavior	4.37	0.95	.689	-.959	.329	.476
Integrative Thinking	4.39	.098	.711	-1.113	.328	.509
Integrative Leadership Resources	4.26	.104	.755	-.633	.327	.572
Integrative Structure & Processes	4.43	.099	.717	-1.182	.328	.520
Total Public Leadership	4.36	.313	.718	-.972	.328	.519

A series of Pearson correlation analyses were conducted to compare how civic capacity and its three sub-scales -- civic connections, civic drive, and civic pragmatism correlate with the two sub-scales of integrative public leadership -- integrative leadership resources and integrative structures and processes from the raters' perspective. There are statistically significant correlations between civic capacity, civic drive, civic connections, civic pragmatism, integrative leadership resources and integrative structures and processes. Civic capacity and integrative leadership resources are significantly correlated,  $r=.93$ ,  $p<.001$ . Civic capacity and integrative structures and processes are significantly correlated,  $r=.83$ ,  $p<.001$ . Results are summarized in Table 8.

Table 8. *Descriptive Statistics and Correlation Matrix for Civic Capacity, Integrative Leadership Resources, and Integrative Structures and Processes from the Raters' perspective (N=53)*

	M	S.D.	1	2	3	4	5	6
1. Total Civic Capacity	4.20	.78	(.96)					
2. Civic Drive	4.14	.80	.90*	(.94)				
3. Civic Connections	4.25	.75	.90*	.69*	(.93)			
4. Civic Pragmatism	4.15	.78	.93*	.72*	.82*	(.89)		
5. Integrative Leadership Resources	4.26	.76	.93*	.78*	.88*	.89*	(.84)	
6. Integrative Structures & Processes	4.43	.72	.83*	.60*	.79*	.89*	.84*	(.82)

Note. Reliability coefficient estimates ( $\alpha$ ) are in Parenthesis along diagonals. \* $p < .001$  (Two-tailed test).

A series of independent samples *t*-test were conducted to compare NWLA alumni pre-Academy and post-Academy civic drive abilities from the raters' perspective. This was the only sub-scale of civic capacity for which data from both pre-Academy and post-Academy was available. There were 99 rater responses pre-Academy and 53 rater responses post-Academy. There was a significant increase in NWLA alumni civic drive from pre-Academy ( $M=2.91$ ,  $SD=.50$ ) to post-Academy ( $M=4.14$ ,  $SD=.80$ );  $t(150)=11.27$ ,  $p=.000$ ,  $d=1.84$  from the raters' perspective. Results are summarized in Table 9.

Table 9. *Results of an Independent Samples t-Test Comparing Raters' Perspective of NWLA Alumni Civic Drive Ability Before and After the NWLA*

Civic Drive	N	M	SD	<i>t</i>	df	Sig.	Cohen's <i>d</i>
Pre-Academy	99	2.91	.50	11.27	150	.000	1.84
Post-Academy	53	4.14	.80				

\* $p < .001$ .

### **Civic Capacity and Integrative Public Leadership-Alumni and Rater Perspective Compared**

The use of multiple sources of data when assessing leadership abilities to avoid problems associated with self-report bias and social desirability issues (Donaldson & Grant-Vallone, 2002). A series of independent samples *t*-test were conducted to compare NWLA alumni self-indicated scores of civic capacity to the scores received from the raters' perspective. There were 53 rater responses and 31 NWLA alumni responses. There was a significant difference in perspective of utilizing civic capacity between the NWLA alumni ( $M=3.64, SD=.94$ ) and the raters ( $M=4.20, SD=.78$ );  $t(82)=3.84, p=.000, d=.65$ . Results are summarized in Table 10.

Table 10. *Results of an Independent Samples t-Test Comparing NWLA Participant Perspective to Raters' Perspective of Civic Capacity*

Civic Capacity	N	M	SD	<i>t</i>	df	Sig.	Cohen's <i>d</i>
NWLA Participant	31	3.64	.94	3.84	82	.000	.65
Rater	53	4.20	.78				

\* $p<.001$ .

A series of independent samples *t*-test were conducted to compare NWLA alumni self-indicated scores of integrative public leadership to the scores received from the raters' perspective. There were 53 rater responses and 31 NWLA participant responses. There was a significant difference in perspective of utilizing integrative public leadership between the NWLA alumni ( $M=3.88, SD=.91$ ) and the raters ( $M=4.36, SD=.72$ );  $t(82)=3.45, p=.001, d=.58$ . Results are summarized in Table 11.

Table 11. *Results of an Independent Samples t-Test Comparing NWLA Alumni Perspective to Raters' Perspective of Integrative Public Leadership*

Integrative Public Leadership	N	M	SD	<i>t</i>	df	Sig.	Cohen's <i>d</i>
NWLA Alumni	31	3.88	.91	3.45	82	.001	.58
Rater	53	4.36	.72				

*\*p* < .001.

The above analyses indicate a higher mean average from the perspective of the raters than the NWLA alumni. This suggests that others view NWLA alumni as utilizing the skills of civic capacity and integrative public leadership more often than the NWLA alumni.

## Chapter 5-Discussion

### Summary

This study was a mixed mode inquiry investigating the link between leadership development, civic capacity, and public leadership within the context of the adaptive governance using the NWLA as an example case. Due to the multi-faceted design of this study the research method chosen for this inquiry was an instrumental case study (Yin, 2008). The case was the NWLA, which has had a total of 50 participants during in its first four years. The NWLA is a one-year program aimed at developing new leaders in the water management arena in the state of Nebraska. Participants in this study included 21 alumni qualitative interviewees, 31 NWLA alumni and 53 NWLA alumni-elected raters. The 21 interview alumni were interviewed one time for 20-40 minutes, while each questionnaire participant completed one on-line questionnaire each. After the interviews, emerging themes were used to construct the essence of leadership and the role it has to play with natural resources management. After the on-line questionnaire was submitted, results were analyzed and conclusions regarding civic capacity and public leadership engagement were reported. Results of both qualitative and quantitative inquiries are reported in Chapter 4.

In this instrumental case study, data collection was used to gain insight into a particular phenomenon and the qualitative and quantitative nature of this inquiry strengthen this insight into leadership and its role within the context of adaptive governance of natural resources management. Findings from this mixed mode study

demonstrate how leadership experiences were used after being engaged in a year-long natural resource leadership development program.

### **Implications of Research**

The findings of this study indicate a link between leadership and collaborative processes within natural resources, like that of adaptive governance. The qualitative interviews illustrated themes involving knowledge, confidence, community involvement, open mindedness, followership, the engagement of others, transformational leadership, communication, networking, personality, personal growth, teamwork, and innovation. Alumni indicted a heightened sense of leadership, open mindedness, and engagement since their participation in the NWLA. Alumni directly credited the NWLA for altering or enhancing their knowledge on water resources, leadership, and community involvement.

The quantitative findings demonstrated that the NWLA had a direct impact on alumni's civic capacity and public leadership skills. NWLA alumni reported that the characteristics of civic capacity and integrative public leadership describes them sometimes to fairly often (See Appendix E). With regard to the sub-scale of civic drive, NWLA alumni demonstrated a significant increase in their willingness to get involved in their communities after their participation in the NWLA. Multi-rater feedback showed that others have observed an increase in NWLA participant civic capacity and public leadership skills. Multi-rater feedback reported that the characteristics of civic capacity and integrative public leadership describes NWLA alumni fairly often to almost always (See Appendix E). With regard to the sub-scale of civic drive, multi-rater feedback

demonstrated a significant increase in the willingness to get involved in their communities after participating the NWLA.

Quantitative analysis yielded a significant correlation between civic capacity and the two sub-scales of integrative public leadership of integrative leadership resources and integrative structures and processes from both the perspective of the NWLA participant and the perspective of the rater. This correlation supports the proposed model of Sun and Anderson (2012), highlighting a direct link between civic capacity and the above two sub-scales of integrative public leadership. An independent samples *t*-test indicated an increase in the mean value from the perspective of the NWLA alumni to the perspective of the rater. With regard to both civic capacity and integrative public leadership the rater mean score was higher than that of the NWLA participant. This indicates that others view the NWLA participant as utilizing both civic capacity and integrative public leadership more than the NWLA participant themselves acknowledge.

Both the qualitative and quantitative results indicate a common link between involvements in the NWLA, a natural resource based leadership development program, and community engagement and effective collaborative efforts. Based on these results, program organizers will gain insight into the long term impacts of the NWLA. These findings have established a foundation from which program organizers can build a deeper understanding of the long term impacts of the NWLA.

The findings of this mixed mode study also indicate a link between natural resource management, which incorporates the use of adaptive governance, and leadership development. After the NWLA, alumni have become more engaged within their

communities. Alumni are more knowledgeable and provided many examples of when they utilized their leadership skills gained from the NWLA to aid them in either their jobs, with their family, or in public meetings. This study established a foundation upon which more research may be conducted.

### **The Literature Review and Areas for Future Research**

The experiences of participating in the NWLA as detailed above included numerous topics that are rooted in the literature. Such experiences included leadership development, natural resource management, and community engagement. Additionally, the described experience and quantitative results present opportunities for additional research.

The alumni leadership experience since participation in the NWLA as described in this study affirm research by Avolio (2011) and Barbuto and Etling (2002) indicating the benefit of leadership development programs. Researchers Bass, Avolio, Jung, and Berson, (2003) highlight the importance of transformational leadership, a finding that was echoed by the participants of this study. Sun & Anderson (2012) proposed the elements of civic capacity and public leadership as results of leadership development. This study addressed the concern of Black and Ernest (2009) and explored the impacts of a leadership development program on an individual's community. Dietz et al. (2004), Folke et al. (2005), and Walters (1995) all indicated the need for leadership within ecosystem management and this study explored that element from 21 individuals actively employed within the natural resources field in the state of Nebraska.

While many of the NWLA alumni experiences and the on-line questionnaire

results were consistent with the literature, there were a few areas in which additional exploration is needed. One example included the difficult dynamic of collaborative efforts. The literature review included studies outlining the drawbacks to adaptive management, collaborative adaptive management, and adaptive governance and the additional emphasis needed on the human element of all of these processes. However, the benefit of leadership development programs on participant open mindedness was absent from the literature. The fact that this was a theme that emerged from the qualitative aspect of this study indicates the need for exploration into the concept of open mindedness and its connection to the outcome of collaborative efforts in natural resources management methods like that of adaptive governance.

Another topic raised through this study indicated active engagement of NWLA alumni in collaborative efforts regarding natural resources since participation in a leadership development program. More emphasis, however, could be placed on exploring the link between leadership development and community dynamics, including community planning, policy, and natural resource management. An important topic raised from this study is the link between leadership and natural resource management. This was hinted at in the literature, but not fully articulated. Future research should directly involve leadership development as part of the adaptive governance process. Attention to human/social systems is critical for the assessment of adaptive governance (Beratan, 2014). Such an exploration would include leadership development as its own aspect of adaptive governance to draw more linkages between leadership and natural resources management. Adaptive governance is used to manage complex ecosystems

while incorporating the social element. The development of complex systems theory must be applied to integrated social-ecological systems, (Folke et al., 2007). This complex systems theory must involve leadership in order to play a role in successful adaptive governance.

The NWLA should continue to develop leaders trained in transformational leadership. This study indicates a correlation between civic capacity and integrated public leadership, both of which are enhanced through the use of transformational leadership as indicated by Sun and Anderson (2012). In the future, the NWLA should consider involving an assessment of both civic capacity and integrative public leadership and how these two concepts correlate with transformational leadership, already being assessed at the NWLA as a direct result of the model put forth by Sun and Anderson (2012). The NWLA should also consider incorporating the use of adaptive governance at a session to strengthen the link between leadership and adaptive governance that has been indicated through this study. This link should be explored in more detail, and utilizing adaptive governance within the NWLA would only benefit the overall knowledge and skill set of the program alumni. The NWLA should also consider changing its curriculum to have a larger process-based focused, incorporating the knowledge aspect of water, and supported by first hand activities and chances to utilize the leadership skills like that of transformational leadership, civic capacity and integrative public leadership.

Future research should explore the relationship between civic capacity and adaptive leadership in the context of adaptive governance. Adaptive leadership involves being a change agent. This means helping other members of the organization, especially

key leaders, recognize that an environment is changing and building consensus while change is simultaneously occurring (Cojocar, 2011). A change agent is particularly important during processes involving unfamiliar territory and unpredictability, much like adaptive governance. Innovation, adaptation, and continuous learning are all central tenets of this leadership type, similar to that of adaptive governance. Innovation involves taking a new approach to a familiar or known situation. Adaptation involves taking a known solution and modifying it to the specific situation or responding effectively to changes in the environment itself. Adaptive leadership requires agile, versatile leaders who foster continuous organizational learning while actively engaging in iterative collaboration and dialog that enhances decision-making at all levels (Cojocar, 2011). Adaptive leadership is an accepted leadership practice that facilitates leading in a difficult and changing environment. Heifetz et al. (2009) consider adaptive leadership to be the practice of mobilizing people to tackle tough challenges and thrive. Adaptive leadership and its flexible design fit the mold of adaptive governance and should be considered as a leadership theory to strengthen the adaptive governance overall process.

### **Conclusions and Recommendations**

The experience of participating in the NWLA yielded both rich descriptions of themes and quantitative data that will inform future discussions about linking natural resource management and leadership through a process such as adaptive governance. The development of complex systems theory must be applied to integrated socio-ecological systems (Folke et al., 2007). In addition to theme identification and statistical validation, this study included detailed accounts of the individual and collective experiences of

leadership and community engagement following participation in the NWLA. Such findings help inform current and future natural resources and leadership field experts. These descriptions may also have a broader impact on both the natural resources and leadership arenas, providing a link between the two fields.

This mixed mode inquiry case of the NWLA indicated that both qualitative and quantitative analyses revealed similar findings. Several overlapping experiences were evident from both the empirical analysis and personal accounts. The experiences and quantitative data analysis indicated the need for addition research in multiple areas. Such areas include, but are not limited to:

- Leadership development and its impact on organizations and communities.
- Leadership development including specific development in civic capacity and integrative public leadership.
- Leadership development impact on the natural resource field.
- The exploration of leadership within adaptive governance.
- A deeper understanding of the concept of civic capacity and the natural resources field.
- An investigation of the use of public leadership within the natural resources field.
- The benefits of linking leadership and natural resource management.
- The potential complications of linking leadership and natural resources.

Those reviewing this study may also find supplementary parts of the leadership experience described here that may lead to future research as well. Each of these areas for

further research presented themselves in ways that could be understood more deeply in an effort to inform natural resource management and leadership theory.

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## **Appendices**

**Appendix A-Acronym List**

**Appendix A-Acronym List**

CSS- Critical Social Science Perspective

IRB- Institutional Review Board

ISS- The Interpretive Social Science

NRD- Natural Resources District

NWLA- Nebraska Water Leaders Academy

SPSS- Statistical Package for the Social Sciences

**Appendix B- Interview Informed Consent Letter**




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COLLEGE OF AGRICULTURAL SCIENCE AND NATURAL RESOURCES  
Department of Natural Resources

Dear Study Participant,

My name is JoLeisa Cramer. I am conducting a thesis study of the role leadership may have to play within the Adaptive Management process. If you are 19 year of age or older and are currently or have formally been a member of the Nebraska Water Leaders Academy, you may participate in this research.

Participation in this study will require you to participate in one face to face interview of up to 60 minutes. Participation in an interview will take place in a public meeting area or another location chosen in collaboration with the researcher. This interview will be audio recorded for future reference.

There are no known risks or discomforts associated with this research.

The results of this study will be utilized for a master's thesis and potential for inclusion in public presentations and articles.

Your responses to this interview will be kept confidential. Your name will not be associated with any official publication of the study results.

You may ask any questions concerning this research at any time by contacting JoLeisa Cramer, 402-984-6129, joleisacramer@gmail.com. You may also contact Mark Burbach, mburbach1@unl.edu. If you would like to speak to someone else, please call the Research Compliance Services Office at 402-472-6965 or irb@unl.edu.

Participation in this study is voluntary. You can refuse to participate or withdraw at any time without harming your relationship with the researchers or the University of Nebraska-Lincoln, or in any other way receive a penalty or loss of benefits to which you are otherwise entitled.

You are voluntarily making a decision whether or not to participate in this research study. By agreeing to participate in the interview, you have given your consent to participate in this research. You should print a copy of this page for your records.

Sincerely,

JoLeisa Cramer

---

Signature of Research Participant

---

Date

I agree to be audio recorded during this interview.

**Appendix C-Interview Script & Question Bank**

**Go Over Interview...20-40 minutes**

**Consent Form Signed**

**\*\*1,2,3 Test of Tape Recorder Before Even Starting\*\***

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**My name is JoLeisa Cramer, the primary researcher and I am conducting an in-depth interview with \_\_\_\_\_ today.**

**\_\_\_\_\_ has agreed and signed the informed consent document provided to participate in this interview and understands in doing so that the information recorded in this interview will be used for my thesis research and may be used in academic presentations or papers in the future.**

**Today's Date is: \_\_\_\_\_**

**The time is approximately: \_\_\_\_\_**

**This interview is taking place at: \_\_\_\_\_**

**\_\_\_\_\_ I am going to begin by asking you some generic questions about yourself.**

**❖ *When did you participate in the Academy?***

**Now we are going to continue into the remainder of the questions I have for you.**

**Please take your time in answering the following questions and please ask for clarification at any time.**

---

**Overall question:**

- How has the leadership development process influenced water-related civic engagement using the Nebraska Water Leaders Academy as a case study?

Two Basic Phenomenology Questions:

- Describe some experiences where you have seen/felt/understood the essence of leadership within the Nebraska Water Leaders Academy?
- What contexts or situations have typically influenced or affected your experiences of leadership since your participation in the Nebraska Water Leaders Academy

Possible Interview Questions:

1. How has the leadership development process influenced water-related civic engagement using the Nebraska Water Leaders Academy as a case study?
2. How has the Nebraska Water Leaders Academy influenced alumni engagement in certain aspects of the adaptive management process such as collaboration?
3. How has the Nebraska Water Leaders Academy influenced alumni civic capacity?
4. Describe some experiences where you have seen/felt/understood the essence of leadership within the Nebraska Water Leaders Academy?
5. What contexts or situations have typically influenced or affected your experiences of leadership since your participation in the Nebraska Water Leaders Academy?
6. How have you used the leadership skills learned from the Nebraska Water Leaders Academy in collaborative efforts since your graduation from the Academy? Please be specific and expand on the skills used and why if possible.

7. How has the Nebraska Water Leaders Academy affected or changed your own individual leadership style? Please expand if possible.
8. How do you feel the interactions between individuals in a stakeholder environment affect the collaboration process when involved with natural resources, such as water in the state of Nebraska?
9. How have you changed your personal interactions as a stakeholder in a collaborative effort since your participation in the Nebraska Water Leaders Academy? Please provide an example if possible.
10. How has the Nebraska Water Leaders Academy affected your personal leadership involvement in your own organization for which you work, and community as a whole? Please describe any and all examples if possible.
11. How has the Nebraska Water Leaders Academy helped you understand the collaboration process as a whole?
12. How have you incorporated the use of the 4I's (Idealized influence, Inspirational motivation, Intellectual stimulation & Individualized consideration) into your leadership style since your participation in the Nebraska Water Leaders Academy? Please provide specific examples if possible.
13. Do you think there are negative aspects to incorporating leadership into the adaptive management process and its key concepts (i.e. collaboration, conflict resolution)? Please expand on why you feel this way?

14. Do you think there are negative aspects to incorporating leadership into the adaptive management process and its key concepts (i.e. collaboration, conflict resolution)? Please expand on why you feel this way?

---

**Great! That is all the questions I have for you today!**

**Thank you for your time and willingness to help with this research effort!**

**The information you provided will help us to evaluate the influence of the Academy on participants' leadership skills.**

**Thank you again for all of your help.**

**Have a great morning/afternoon/evening!**

**\*\*Give them Business Card\*\***

**Appendix D- Internet Questionnaire Informed Consent E-mails**



Subject: Nebraska Water Leaders Academy  
Questionnaire

COLLEGE OF AGRICULTURAL SCIENCE AND NATURAL RESOURCES  
Department of Natural Resources

Dear Water Leaders Academy Participant:

You will soon be asked to participate in research related to your participation in the Nebraska Water Leaders Academy. The purpose of the study is to determine the effect of the Academy on your leadership skills and behaviors on your ability to collaborate for a public good as you perceive it. You are invited to participate in this study because you are a participant in the Academy.

At the end of the Academy we would like to evaluate your level of knowledge, skills, and behaviors by completing an on-line questionnaire that assesses your ability to collaborate for a public good. Upon your consent to participate in this study, we would like you to invite 3-5 others who are professionally acquainted with you to rate your leadership knowledge, skill, and behaviors as it pertains to collaboration of a public good.

Participation in this research will require approximately 10 minutes of your time during your personal time on one occasion and is not considered a requirement for the Academy. There are no known risks or discomforts associated with this research. There are also no direct benefits to you for participating in this study.

Any information obtained during this study that could identify you will be kept strictly confidential. Once your data, and data from your raters, are entered into a spreadsheet your name and all identifying information will be removed. Upon completion of data collection, the survey will be closed and all material other than the raw data file will be destroyed. The data will be stored on a password protected computer in the investigators' office and will only be seen by the investigators during the study and for five years after the study is complete. The information obtained in this study may be published in scientific journals or presented at scientific meetings but the data will be reported as aggregated data.

You may ask any questions concerning this research and have those questions answered before agreeing to participate. Or, you may call the investigators at any time. JoLeisa Cramer's phone number is (402) 984-6129, and Dr. Mark Burbach's office phone number is (402) 472-8210. If you have any questions concerning your rights as a research participant that have not been answered by the investigators, or to report any concerns about the project, please contact the University of Nebraska-Lincoln Institutional Review Board, phone (402) 472-6965.

You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators, the University of Nebraska-Lincoln, or the Water Leaders Academy. Your decision will not result in any loss of benefits to which you are otherwise entitled.

You will be voluntarily making a decision whether or not to participate in this research study. By completing the on-line questionnaire your consent to participate is implied. Please keep this form for your records. The link to the questionnaire will be e-mailed to you soon.

Sincerely,  
JoLeisa Cramer



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Subject: Nebraska Water  
Leaders Academy

COLLEGE OF AGRICULTURAL SCIENCE AND NATURAL RESOURCES  
Department of Natural Resources

Dear Water Leaders Academy Participant Rater:

You have been identified as having knowledge about the leadership and collaboration behaviors of the person who invited you to participate in this study. The purpose of the study is to determine the effect of the Nebraska Water Leaders Academy on this person's leadership skills and behaviors on their ability to collaborate for a public good. You must be 19 years of age or older to complete the online questionnaire.

At the end of the Academy we would like to evaluate this person's level of knowledge, skills, and behaviors and their abilities to collaborate for a public good by you completing an on-line questionnaire.

Participation in this research will require approximately 10 minutes of your time on two occasions. There are no known risks or discomforts associated with this research. There are also no direct benefits to you for participating in this study.

Your name is not necessary to complete the questionnaire but you do need to identify whom you're rating. Once your data is entered into a spreadsheet the name of the person you are rating and all identifying codes including IP addresses will be removed. Any information obtained during this study that could identify you or the person you are rating will be kept strictly confidential. The data will be stored in a locked cabinet in the investigators' offices and will only be seen by the investigators during the study and for five years after the study is complete. The information obtained in this study may be published in scientific journals or presented at scientific meetings but the data will be reported as aggregated data.

You may ask any questions concerning this research and have those questions answered before agreeing to participate. Or, you may call the investigators at any time. JoLeisa Cramer's phone number is (402) 984-6129 and Dr. Mark Burbach's office phone number is (402) 472-8210. If you have any questions concerning your rights as a research participant that have not been answered by the investigators, or to report any concerns about the project, please contact the University of Nebraska-Lincoln Institutional Review Board, phone (402) 472-6965.

You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the person who invited you to rate them, the investigators, the University of Nebraska-Lincoln, or the Water Leaders Academy. Your decision will not result in any loss of benefits to which you are otherwise entitled.

You are voluntarily making a decision whether or not to participate in this research study. By completing the on-line questionnaire your consent to participate is implied. Please keep this form for your records. The website to the questionnaire will be e-mailed to you.

**Follow this link to the Survey:**

<https://ssp.qualtrics.com/XXXX>

Sincerely,  
JoLeisa Cramer

**Appendix E-Internet Distributed Questionnaire Sample**

### Civic Capacity Questionnaire – Leader (EXAMPLE QUESTIONS)

This questionnaire describes your ability to collaborate for a public good as you perceive it. Please answer all items to the best of your knowledge. Starting with the first question, judge *how frequently each statement fits you*. The words “partners,” “people” or “contacts” may mean anyone with whom you may collaborate on civic issues.

Please use the following rating scale:

	<b>Almost Never</b>	<b>Not Often</b>	<b>Sometimes</b>	<b>Fairly Often</b>	<b>Almost Always</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1. I have a desire to be involved with social issues.....	1	2	3	4	5
2. I know people who can make important contributions to community of public collaborations.....	1	2	3	4	5
3. I use collaboration as a mechanism to turn social opportunities into realities.....	1	2	3	4	5
4. I have a moral desire to serve my community.....	1	2	3	4	5
5. I recognize that much of the effectiveness of multi- sector collaboration is reliant on how the collaboration process itself is organized.....	1	2	3	4	5
6. I seek long term solutions rather than quick fixes.....	1	2	3	4	5
7. I build inter-relationships between collaboration partners in order to mobilize members toward a common purpose.....	1	2	3	4	5

### Civic Capacity Questionnaire – Rater (EXAMPLE QUESTIONS)

This questionnaire describes the person who invited you to rate them and their ability to collaborate for a public good as you perceive it. Please answer all items to the best of your knowledge. Starting with the first question, judge *how frequently each statement fits the person you are describing*.

Please use the following rating scale:

	<b>Almost Never</b>	<b>Not Often</b>	<b>Sometimes</b>	<b>Fairly Often</b>	<b>Almost Always</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1. Has a desire to be involved with social issues.....	1	2	3	4	5
2. Knows people who can make important contributions to community of public collaborations.....	1	2	3	4	5
3. Uses collaboration as a mechanism to turn social opportunities into realities.....	1	2	3	4	5
4. Has a moral desire to serve the community.....	1	2	3	4	5
5. Recognizes that much of the effectiveness of multi- sector collaboration is reliant on how the collaboration process itself is organized.....	1	2	3	4	5
6. Seeks long term solutions rather than quick fixes.....	1	2	3	4	5
7. Builds inter-relationships between collaboration partners in order to mobilize members toward a common purpose.....	1	2	3	4	5

**Appendix F-IRB Approval Letter**



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July 14, 2014

JoLeisa Cramer  
School of Natural Resources

Mark Burbach  
School of Natural Resources  
512 HARH, UNL, 68583-0995

IRB Number: 20140714434 EX  
Project ID: 14434  
Project Title: The Essence of Leadership as it Pertains to Adaptive Management

Dear JoLeisa:

This letter is to officially notify you of the certification of exemption of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as Exempt Category 2.

You are authorized to implement this study as of the Date of Exemption Determination: 07/14/2014.

1. The stamped and approved informed consent documents have been uploaded to NUgrant . Please distribute these documents to participants. If you need to make changes to the documents, please submit the revised documents to the IRB for review and approval prior to using them.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

- \* Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
- \* Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- \* Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
- \* Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- \* Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

*Becky R. Freeman*

Becky R. Freeman, CIP  
for the IRB



**Appendix G-Nebraska State Irrigation Association Consent Letter**

5/19/2014

Gmail - Water Leaders Academy Research-Graduate Studies



JoLeisa Cramer &lt;joleisacramer@gmail.com&gt;

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**Water Leaders Academy Research-Graduate Studies**

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**Lee Orton** <lee@h2oboy.net>  
To: JoLeisa Cramer <joleisacramer@gmail.com>  
Cc: Mark Burbach <mburbach@unl.edu>

Wed, Apr 30, 2014 at 12:30 PM

The Nebraska State Irrigation Association is very appreciative of the involvement of the University in the Water Leaders Academy. We are pleased that JoLeisa Cramer is involved in helping to coordinate this endeavor and are very supportive of the planned study of the works of the Academy.

The NSIA supports your study to determine the effect of the Academy on participants' leadership knowledge, skills, and behaviors as well as the evaluation of the instructional methods used in the Academy. We are also interested in seeing how these skills learned may help with the understanding of key adaptive management concepts and future collaborative efforts the Academy participants may be involved in.

We believe that your study will be invaluable in our plans for the future Academy programs by providing us with important information on teaching and learning methods to insure future program successes.

We understand that any information obtained during this study that could identify participants will be kept strictly confidential and that the data will be reported as aggregated data.

We look forward to the contribution this study will have on the quality of the Academy now and in the future.

For the Association. LEE ORTON, Executive Director