THE DEVELOPMENT OF A CONCEPTUAL FRAMEWORK FOR LAND USE
ENVIRONMENTAL EDUCATION IN THE SOCIAL STUDIES CURRICULUM

FOR GRADERS K-12

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Abstract

The way in which we use the land has a direct effect on the environment. Improper land use results in several types of pollution including air, water, and noise. Our cities and suburbs are sprawling into agricultural land at alarming rates. The students of today will be the citizens of tomorrow who will be making the decisions about land use in their communities. It is important for them to understand the connections between land use decisions and the environment.

This project created a conceptual framework for land use environmental education in the social studies curriculum for grades K-12. It is focused on the social studies classroom because land use planning involves citizen knowledge and action skills.

Two different methods were utilized to create and validate the conceptual framework. A modified Nominal Group Technique was used to generate concepts and begin the process of deciding which concepts should be included in the framework. It was followed by a modified Delphi process, which was used to refine the concepts and form a consensus about which concepts should be included in the framework. The participants in these two methods were land use stakeholders, professionals, and educators from the state of Wisconsin.

The completed conceptual framework for land use environmental education consists of 69 different concepts organized under four broad themes. In the future, it is planned to develop a curriculum based on the conceptual framework. Both will be used as a guiding tool for land use environmental education in the State of Wisconsin and also to begin a dialogue within the land use and educational communities on this critical issue. The long-term goal of this and subsequent projects is to educate the next generation in land use planning and to produce thoughtful and engaged citizens that will see the connection between land use planning and the environment and be compelled to act.
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Chapter 1

Introduction

The introduction provides an overview of the study and provides the following information:

I. Introduction and Importance of Study

II. Statement of the Goal and Sub-goals of the Project

A. Goal

B. Sub-goals

C. Assumptions

D. Limitations

E. Definition of Terms and Abbreviations

Introduction and Importance of the Study

The results of the Ninth Annual National Report Card of Environmental Attitudes, Knowledge, and Behavior (NEETF/Roper Survey, 2000) found that a majority of the public does not know the leading causes of such issues as water pollution, air pollution, and solid waste. Only 28% of those surveyed knew the correct answer to the question “What is the most common cause of pollution of streams, rivers, and oceans?” The correct answer is surface water running off yards, city streets, paved lots, and farm fields, yet, 45% believed that it is caused by waste dumped by factories. This suggests that many Americans are not aware of how land use affects the environment and who or what is causing these problems. Many Americans are not aware of the intricate and intertwined relationship of land use and the environment.
The manner in which land is used has a profound and long-lasting impact on the environment. The well-being of natural systems begins and ends with the land. If growth occurs in a way that is not planned with environmental concerns in mind, the outcome can be disastrous. Many of our present environmental problems, such as air and water pollution and habitat and forest fragmentation, are in part due to the way our communities, towns, and cities have been developed over the past 50 years.

Wisconsin is one of the fastest growing states in the Midwest (Watermolen, 1998). To help plan and control this growth, the State of Wisconsin passed a comprehensive planning law in 1999 commonly called “Smart Growth,” which was created to combat the myriad of problems unplanned development creates. The Smart Growth Law mandates that by the year 2010 every Wisconsin community must have a comprehensive plan and that all local land use decisions and actions would have to be based on this plan (which insures that the plans will be used). The comprehensive plan must be adopted by the governing body of local government after public hearings and public involvement processes. The public will be directly involved in developing this plan.

Education is one of the key elements in effective land use planning. The students of today will be the citizens of tomorrow who will be making the decisions about land use in their communities. Land use planning and management is a tangible subject that can be witnessed in any community and in which the students can be actively involved (particularly right now due to the need of each community to produce a comprehensive plan).

Land use is also an excellent topic to make environmental education multidisciplinary. It has often been thought that environmental education can only be
taught in the science classroom. But this attitude is beginning to change. Harold Hungerford wrote in The Myths of Environmental Education –Revisited (1998), “An excellent argument can be made for infusing environmental education into social studies. If the reader sees environmental issues as being more sociocultural than science-technological, then social studies should become a logical place for environmental education … Environmental education is multidisciplinary.” At this point in time, we know what the problems are in the environment and how to “solve” many of these problems (in scientific terms). The key now is to educate the next generation in land use planning and to produce thoughtful and engaged citizens that will see the connection between land use planning and the environment and be compelled to act. And the first step in this journey is to develop a conceptual framework for land use environmental education for the social studies classroom.

**Statement of the Goal and Sub-goals of the Project**

**Statement of Goal**

The goal of this project is to develop a conceptual framework for land use environmental education in the social studies curriculum for grades K-12.

**Sub-goals**

1) Identify and collect information on current land use environmental education topics and materials.

2) Develop a set of the land use environmental education concepts based on the research findings in sub-goal one.
3) Conduct a modified Nominal Group Technique focus workshop of Wisconsin land use stakeholders, professionals, and educators to begin the process of identifying and validating the concepts that will be included the framework.

4) Conduct a modified Delphi technique to continue with the process of identifying and validating which concepts will be included in the conceptual framework.

5) Validate the final conceptual framework for land use environmental education.

Assumptions

1) There is a need for a conceptual framework for land use environmental education.

2) There is a need for land use environmental education (it is a worthy topic to pursue).

Limitations

1) The professionals involved in the modified Nominal Group Technique will only be from Wisconsin.

2) The professionals involved in the modified Delphi technique will only be from Wisconsin.

Definition of Terms and Abbreviations

Comprehensive Plan – plan that must be created in every community in Wisconsin by the year 2010; the plan must include the following 9 elements:

1) Issues and opportunities

2) Housing
3) Transportation

4) Utilities and community facilities

5) Agricultural, natural, and cultural resources

6) Economic development

7) Intergovernmental cooperation

8) Land use

9) Implementation

**Environmental Education**: lifelong process that leads to an informed and involved citizenry having the creative problem-solving skills, scientific and social literacy, ethical awareness and sensitivity for the relationship between humans and the environment, and commitment to engage in responsible individual and cooperative actions. By these actions, environmentally literate citizens will help ensure an ecologically and economically sustainable environment (as defined by the Wisconsin Environmental Education Board)

**Land Use**: description of how land is occupied or utilized

**Land Use Planning**: the process of mapping out the future land use of a specified area; usually involves a comprehensive plan

**Land Use Environmental Education**: education aimed at developing an understanding of the relationship between land use decisions and the environment
and the realization that the way in which land is used directly affects the environment.

Social Studies: education aimed at helping young people develop the knowledge and skills necessary to make informed and reasoned decisions as citizens of a culturally diverse, democratic society in an interdependent world (Benson et al., 1998).

CLUE is the Center for Land Use Education.
EE is environmental education.
LUEE is land use environmental education.
NGT is the Nominal Group Technique.
WCEE is the Wisconsin Center for Environmental Education.
Chapter 2

Review of the Related Literature

The goal of this project was to develop a conceptual framework for land use environmental education (LUEE) for grades K-12 primarily in the social studies curriculum.

This literature review will address the following topics:

- **The Importance of LUEE**
- **The Role of Education in Land Use Planning**
- **The Fit of Environmental Education into the Social Studies Curriculum**
- **Overview of National and State of Wisconsin Standards for Environmental Education and Social Studies**
- **Developing a Conceptual Framework Related to LUEE**
- **Summary**

**The Importance of LUEE**

In 1991, representatives from several countries met in Rio de Janeiro at the United Nations Conference on Environment and Development (UNCED). The worldwide attention given to the conference confirmed humankind’s recognition and concern that people have greatly altered the Earth in the past and continue to alter it with “serious implications for the physical well-being of the planet and its inhabitants.” (Turner and Butzer, 1992).

In 1993, the Clinton/Gore Administration initiated the President’s Council on Sustainable Development (PCSD). It was developed to advise the administration on
sustainable development and to develop “bold, new approaches to achieve economic, environmental, and equity goals.” (PCSD, 1999). A report, *Sustainable Development*, was published by PCSD in 1996 and outlined 10 national goals towards sustainable development. Goal 6 was “Sustainable Communities: Encourage people to work together to create healthy communities where natural and historic resources are preserved, jobs are available, sprawl is contained... education is lifelong, transportation and health care are accessible, and all citizens have opportunities to improve the qualities of their lives.” Goal 6 also outlined five “strategic areas of sustainable community development.” One of the areas was Land Use and Development, which was chosen due to the fact that “over the last several decades, sprawling development has exacerbated economic, environmental, and social problems.”

Ten years after the Rio Earth Summit, a World Summit on Sustainable Development was held in Johannesburg, South Africa (United Nations, 2002). Tens of thousands of participants were brought together to build upon the ideas created in the Rio Earth Summit. The goal of the Summit was to plan for implementation of the ideas generated in the Rio Earth Summit and to, once again, “focus the world’s attention and direct action towards meeting difficult challenges, including improving people’s lives and conserving our natural resources” in a world that is constantly putting more demands on the planet. (http://www.johannesburgsummit.org, 04/14/03).

The World Summits on sustainable development, the creation of the President’s Council, and subsequent reports further illustrates that there is an increasing awareness of the connection between land use, communities, and the environment.
Following WW II, “an explosion of population and economic activity transformed America’s cities, suburbs, and countryside.” (Diamond and Noonan, 1996). This “explosion” included a continuation of the population increase in the cities and suburbs of America and also marked the rise of sprawl. This tremendous growth began to affect the amount of undeveloped urban and rural land. Between 1970 and 1990, almost 20 million acres of rural land were developed nationwide (Sierra Club, 1998). And this development continues.

In Chicago, Los Angeles, Philadelphia, and virtually every other major metropolitan area, countless uncoordinated development decisions have caused expansion at a far faster rate in land consumption than in population growth (Diamond and Noonan, 1996). For example, between 1963 and 1990, the population of metropolitan Milwaukee, Wisconsin increased by 12.5%. During the same period the amount of developed land in the region increased by 82% (WDNR, 1999). It is estimated that, on average, each person in the USA uses 4 or 5 times more land for roads, homes, and shopping now than 40 years ago (Sierra Club, 1996).

Many more communities now feel the impacts of traffic congestion, unsightly development, diminishing open space, and natural resource constraints – all closely linked to the way people settle the land and the quality of life they enjoy (Diamond and Noonan, 1996). Daniel Patrick Moynihan, U.S. Senator, said, “It is becoming increasingly obvious that American Government, both national and local, can no longer ignore what is happening as the suburbs eat endlessly into the countryside. Since the spreading pollution of land follows the roads, those who build the roads also must recognize the responsibility of the consequences” (EE News, 1998).
The environment is directly affected by this migration of people and development of land. Abandoned toxic sites, the loss of fertile agricultural lands, polluted water wells – these are all wake-up calls demanding a response (Diamond and Noonan, 1996). Wisconsin is not immune to these types of problems. The way in which we use land is one of the most significant, long-term environmental issues facing Wisconsin (Watermolen, 2000). Wisconsin has lost 47% of its original 10 million acres of wetlands; in some counties, the loss is well over 75% (WDNR, 1995). For every acre under construction, the equivalent of one and one-half dumptruck loads of sediment enters waterways (WDNR, 1995).

One way to change or prevent this myriad of environmental problems is through land use planning. Land use plans are general indicators of how the land in a community should be used (Watermolen, 2000). Planning minimizes the destruction of natural systems and accommodates human settlements to the natural world (Diamond and Noonan, 1996). Also, planning prevents haphazard conservation, which can be as bad as haphazard development, “planning for conservation, every bit as much as planning for growth and development, can add predictability to the land use process” (Diamond and Noonan, 1996).

In 1999, the State of Wisconsin passed a comprehensive planning law commonly called “Smart Growth,” which was created to combat the myriad of problems unplanned development creates. The Smart Growth Law mandates that by the year 2010 every Wisconsin community must have a comprehensive plan and that all local land use decisions and actions will have to be based on this plan.
This law was created in response to two key concerns. The first was that many communities did not have comprehensive plans, and if they did, they varied in content and scope and were often ignored when making land use decisions. The second was the increasing concern about the future growth and development of the State of Wisconsin. A coalition of organizations and individuals representing environmental, business, and realtor interests met and worked together for two years to develop the definition of the comprehensive plan for the law. The State Legislators then added several more components to the plan.

The comprehensive planning law also mandates that the public must be involved in the development of the comprehensive plan through public hearings and public involvement processes. But getting the public to be actively involved in these processes can present some challenges.

There are several possible reasons why the public does not get involved in land use planning. Some people simply do not have an interest in the planning process. Or they may believe that it is the government attempting to control personal property-rights. Decisions about land use laws and zoning can be quite controversial as well. People often feel powerless to influence these decisions.

Another obstacle may be that many people may not even notice the changing landscape until a land use project is completed. “Gradual changes to the landscape make it difficult to catch the attention of people bombarded with environmental and other alarms…” (Diamond and Noonan, 1996).

But to combat the rise of future environmental problems, planning is essential. Difficult decisions must be made to balance the desire for growth with the desire to have
distinct communities, rural areas, and aesthetically pleasing surroundings. Like Aldo Leopold’s description of our natural environment as a round river, there are many interconnected issues that influence how our land is used (WDNR, 1995). Land use is of vital concern to the State of Wisconsin chiefly because of the long-term nature of land use decisions and policies (WDNR, 1995).

Land use and land use issues in Wisconsin are increasingly of concern to both the public and the state government (as illustrated by the passing of the comprehensive planning law). Citizens need to be involved in the development of the comprehensive plan and education can be one method to increase the involvement level.

The Role of Education in Land Use Planning

One way to get more people involved and concerned about land use issues and planning is through education. Learning about land use issues is central to understanding many of the environmental issues facing Wisconsin. An understanding of the relationship between land use decisions and the environment is key to citizens making responsible decisions (Watermolen, 2000).

J.A. Christenson (1978) conducted a study that examined attitudes about land use and the level of education about land use (among other things). He found that “self-reported knowledge had a strong influence on the strength of support.” Four out of five individuals surveyed who felt that they knew something about land use were supportive of county planning, while less than half of the individuals who felt they knew nothing about land use favored county planning. He also found that those individuals that had
attended one or more meetings related to land use were more favorable towards land use planning than those individuals that never attended a meeting related to land use.

Likewise, Geisler and Martinson (1982) reported that people are likely to support land use regulation if they are aware of environmental problems that result from land use and that the increase in the level of education about land use seems to increase the support for land use regulation. They concluded, “...EE, in the broad sense, may strengthen the support for [land use] regulation...there would appear to be positive consequences (i.e, greater “adoption”) from environmental conscious raising whether formal or informal.”

Haakonsen et al. (1977) called for introducing community members to educational materials on the land use decision-making process. They believed that this would “encourage the ideal of an environmentally conscious citizenry which can make enlightened decisions concerning state and local land use planning.”

Education can be an essential ingredient in the support of land use planning and producing active and thoughtful citizens. It can also help citizens see the connection between the environment and land use practices. But as seen by the dates of these studies, it is an area that attracted more interest and concern in the late 1970’s to early 1980’s. There is a marked lack of information on this subject in the current literature, especially in the arena of K-12 education. But because of the renewed emphasis on land use, it is time that this topic is examined again for education.
The Fit of Environmental Education into the Social Studies Curriculum

Environmental education programs readily lend themselves to the social studies curriculum. One needs to go no further than the National Council for Social Studies (NCSS) Standards to find ample evidence of the connections among social studies and environmental education (Archie, et al., 1999).

An excellent argument can be made for infusing environmental education into social studies. If the reader sees environmental issues as being more sociocultural than science-technological, the social studies should be a logical place for environmental education. Certainly the [environmental] issues are value-laden, a characteristic somewhat foreign to classical scientific fields…environmental education is multidisciplinary…(Hungerford, 1998 p.53).

Social studies “helps young people develop the knowledge and skills necessary to make informed and reasoned decisions as citizens of a culturally diverse, democratic society in an interdependent world” (Benson et al., 1998). The Wisconsin Environmental Education Board (WEEB) defines environmental education as a “lifelong process that leads to an informed and involved citizenry having the creative problem-solving skills, scientific and social literacy, ethical awareness and sensitivity for the relationship between humans and the environment, and commitment to engage in responsible individual and cooperative actions. By these actions, environmentally literate citizens will help ensure an ecologically and economically sustainable environment.” (Fortier et al., 1998). These definitions highlight an important mutual component of these two areas – the development of knowledge and skills that can lead to informed and involved citizenry.

One of environmental education’s cardinal practices is the commitment to the infusion of EE throughout the entire school curriculum (Simmons, 1989). The thought behind this is that the more students are exposed to EE in all grade levels and subjects,
the more students will have a comprehensive understanding of environmental concerns (Simmons, 1989). Simmons found, though, that many teachers (62.6%) believe that EE should be taught in the science classroom primarily (Simmons, 1989). Social studies was mentioned by only 36.3% of the respondents to the question where EE should be taught (Simmons, 1989).

Simmons also discovered that another factor of whether EE is taught in the classroom is the availability of curriculum materials (Simmons, 1989). She examined four different curricula materials in terms of the number of subjects it addressed. The four curricula were Project Learning Tree, Project WILD, Living Lightly in the City, and Project WILD Aquatic. She found that the overwhelmingly majority of the activities were science-oriented (for example, 94% of Project WILD and 89% of Project WILD Aquatic). She concluded that if the field of EE is committed to infusion, it must be committed to producing more curriculum materials that are non-science based (in areas such as social studies, mathematics and health).

The researcher for this project found that her review of literature indicates that the development of more curriculum materials that are non-science based, while increasing, has not been fully embraced and the majority of the materials for environmental education are still science-based. Because of the importance of educating a knowledgeable and involved citizenry to both social studies education and environmental education, it seems particularly fitting and important to develop land use environmental education curriculum materials for social studies classrooms.
Environmental education programs can be used to teach a variety of social studies concepts (Archie, et al., 1999). Environmental education offers opportunities for teaching across the social studies curriculum, integrating methods and ideas from history, civics, geography, and economics to help students develop the skills they need to understand connections in the environment (Archie, et al., 1999).

Engle and Ochoa (1988) have recommended that environmental studies be one of the nine strands in their proposed framework of a social studies curriculum that focuses on the education of citizens of a democracy. They define environmental studies as “the study of problems that surround human use of the environment – the study should be focused on the problems that arise out of this relationship.”

Environmental education offers social studies students a powerful tool for integrating what they are learning about in a real-world context (Archie, et al., 1999). An environmental issue is a “socially or ecologically significant problem, somehow related to the environment, about which there are differing human beliefs and values” (Ramsey, et al, 1989). In the “Goals for Curriculum Development in Environmental Education” (Hungerford, Peyton, and Wilke, 1980), investigation and exploration of environmental issues are stressed in each of the four goals. Ramsey et al. stated (1989), “Modern life is filled with social issues having environmental dimensions.” The social studies curriculum can be utilized to explore and address some of these issues. Hepburn (1974) concluded in her study of analytical frameworks for environmental social studies, “...social studies classes presently offer some of the best opportunities for drawing from science, social science, and humanities to study issues of the environment and alternatives for action.”
Exploring land use issues provides an excellent opportunity to help students learn how to think, not what to think. This is not only a basic principle of environmental education, but also a requisite for responsible citizenship (Watermolen, 2000).

One of the tenets of democracy is the right of all citizens to be informed and to have knowledge (Engle and Ochoa, 1988). Citizens need to have access to all information if they are expected to fully participate in a democracy (Engle and Ochoa, 1988). This basic knowledge is crucial, because citizens need to be aware of the major problems that confront America (and the world) (Engle and Ochoa, 1988). Educating students about land use and land use issues could, therefore, assist them in fulfilling their democratic rights and responsibilities.

Overall, the researcher found little information or studies about land use being taught in the social studies curriculum. The exception to this is found in geography. This area appears to have the strongest connection to land use and is taught in varying degrees in some social studies classrooms. This usually takes the form of map interpretation and GIS exercises. Although this is part of land use, the researcher feels that maps and GIS coupled with the teaching of other land use topics and skills would give students a more holistic view of land use. This particular study is also more focused on citizen skills and action, opposed to geography skills.

The researcher feels that there is a definite gap in the literature of the citizen skills and action area of land use and that this fact alone strengthens the need to produce the framework. The researcher has several theories on why there is this gap, including educators feeling that EE is only meant to be taught in the science classroom, that land use issues are still seen as “adult issues” (vs. something to be taught to school-aged...
children), and the basic lack of knowledge about land use by most educators. Land use is also a subject that many teachers may shy away from, due to its controversial nature. There is also the constant pressure for teachers to address the state and national standards and prepare for standardized tests in social studies. Many teachers feel overwhelmed and could view land use environmental education as one more thing to do in an already overcrowded schedule. But the standards for both social studies and environmental education illustrate that land use can be a unifying topic to address both of these sets of standards.

Overview of National and State of Wisconsin Standards for Environmental Education and Social Studies

Land use environmental education is a subject that can highlight the overlap of standards in social studies and environmental education. Teachers do not need to view LUEE as one more thing to do – instead they can see it as a way to facilitate issue discussions about “real-life” current topics. Students can apply the knowledge learned in the social studies classroom to these issue discussions.

National Level

There are recommended national standards for both social studies and environmental education.

The National Council for Social Studies developed their standards Expectations of Excellence: Curriculum Standards for Social Studies in 1994. There are ten strands
outlined in the National Standards for Social Studies. Three of them directly relate to the
guidelines and goals of EE and themes within the topic of Land Use.

Strand Three is “People, Places, and Environments.” It states “the study of people,
places, and human-environment interactions assist learners as they create their spatial
views and geographic perspectives of the world.” (NCSS, 1994). Strand Six is “Power,
Authority, and Governance.” It states “understanding the historical development of
structures of power, authority, and governance and their evolving functions in
contemporary U.S. society, as well as other parts in the world, is essential for developing
civic competence.” (NCSS, 1994). And finally, Strand Ten is “Civic Ideals and
Practices.” It states, “an understanding of civic ideals and practices of citizenship is
critical to full participation in society and is a central purpose of the social studies.”
(NCSS, 1994).

The North American Association for Environmental Education (NAAEE)
developed Excellence in Environmental Education – Guidelines for Learning (K-12) in
1999. These guidelines were developed to provide “voluntary guidelines” for
environmental education and to ultimately produce an environmentally literate citizen.
The guidelines are divided into four main strands. Within these four strands, there are
several sub-categories. Several strands and sub-categories can directly relate to the
standards in social studies and themes within the topic of land use.

Strand Two is “Knowledge of Environmental Processes and Systems: An
important component of environmental literacy is understanding the processes and
systems that comprise the environment, including human systems and influences." Two of the sub-categories are "Humans and their Societies" and "Environment and Society".

Strand Three is "Skills for Understanding and Addressing Environmental Issues: Environmental literacy includes the abilities to define, learn about, evaluate, and act on environmental issues." The two subcategories are "Skills for analyzing and investigating environmental issues" and "Decision-making and citizenship skills."

And Strand Four is "Personal and Civic Responsibility: As learners develop and apply concept-based learning and skills for inquiry, analysis, and action, they also understand that what they do individually and in groups can make a difference."

Archie, et al. (1999) wrote, "Taken singly, each set of national standards in social studies (i.e., history, social studies, civics, economics, geography) incorporates learning and instructional goals that are aligned with those in environmental education." These examples demonstrate that there are similar components to both the NCSS Standards and the National Environmental Education Guidelines. These components include knowledge of the environment and human interactions with the environment, understanding issues and how decisions are made regarding these issues, and most strongly, citizenship skills and the understanding of the responsibilities that all citizens have in a democracy. Several land use topics could address these similar components of both sets of standards/guidelines.

In particular, an issues-based curriculum could address these standards/guidelines. For example, students could investigate a land use topic in their community or region. The issue could be one that deals with humans interacting with the environment, such as an issue of deciding whether to develop or conserve community green space. Students
could investigate all sides of the issue and consequences of each decision. They could investigate how community members would get involved in the debate and which levels of government are involved in the decision-making process. They could attend community and government meetings about this subject and even present their findings to the public (if they were at an appropriate age). This is just one example of how land use topics and issues can link together these two different areas of national standards.

State Level

Wisconsin’s Department of Public Instruction has produced Model Academic Standards for many subjects, including both social studies and environmental education.

The following are overlapping model performance standards specified by the researcher for social studies and environmental education in 4th, 8th, and 12th grades (note: the letter represents one of the strands or topics in the standards for each subject, the first number indicates the grade level, and the second number indicates the goal number under each letter and grade level; as well, each Social Studies Standard has one or more Environmental Education Standards listed below it for that particular goal). The standards are organized under the three areas of overlap highlighted in the discussion above regarding the national standards.

Knowledge of human interaction with the environment

(1) Social studies: D.8.11 Describe how personal decisions can have a global impact on issues such as trade agreements, recycling, and conserving the environment
Environmental education: B.8.20 Identify types of waste and methods for waste reduction

Understanding issues

(2) Social studies: C.4.6 Locate, organize, and use relevant information to understand an issue in the classroom or school, while taking into account the viewpoints and interests of different groups and individuals

E.4.8 Describe and distinguish among the values and beliefs of different groups and institutions

Environmental education: A.4.1 Make observations, ask questions, and plan environmental investigations

A.4.2 Collect information, make predictions, and offer explanations about questions asked

A.4.3 Develop answers, draw conclusions, and revise their personal understanding as needed based on their investigations

C.4.1 Identify environmental problems and issues

(3) Social studies: E.4.7 Explain the reasons why individuals respond in different ways to a particular event and the ways in which interactions among individuals influence behavior

Environmental education: C.4.3 Identify people and groups that are involved in an environmental issue
(4) **Social studies:** C.12.8 Locate, organize, analyze, and use information from various sources to understand an issue of public concern, take a position, and communicate the position

**Environmental education:** A.12.1 Identify questions that require skilled investigation to solve current problems cited in literature, media, or observed through personal observation

**Citizenship skills**

(5) **Social studies:** C.8.7 Locate, organize, and use relevant information to understand an issue of public concern, take a position, and advocate the position in a debate

**Environmental education:** A.8.1 Identify environmental issue questions that can be investigated using resources and equipment available

A.8.4 Use critical-thinking strategies to interpret and analyze gathered data

A.8.5 Use the results of their investigations to develop answers, draw conclusions, and revise their personal understanding

C.8.1 Define and provide examples of environmental issues, explaining the role of beliefs, attitudes, and values

C.8.3 Use questioning and analysis skills to determine beliefs, attitudes, and values held by people involved in an environmental issue
(6) **Social studies:** E.8.4 Describe and explain the means by which individuals, groups, and institutions may contribute to social continuity and change within a community.

**Environmental education:** D.8.3 List reasons why an individual or group chooses to participate or not participate in an environmental activity in the home, school, or community.

D.8.5 Explain how personal actions can impact an environmental issue.

D.8.6 Develop a plan for improving or maintaining some part of the local environment and identify their role in accomplishing this plan.

D.8.8 Give examples of education, economic, and government institutions’ influence on an environmental issue and the role of citizens in policy formation.

(7) **Social studies:** E.12.14 Use the research procedures and skills of the behavioral sciences (such as gathering, organizing, and interpreting data from several sources) to develop an informed position on an issue.

**Environmental education:** D.12.1 Identify a variety of approaches to environmental issues, evaluate the consequences of each, and select and defend a position.

The overlap of both the national and state-level standards illustrates that a LUEE curriculum has the potential to simultaneously achieve both social studies and environmental education standards.
LUEE can be a way to blend both environmental education and social studies. R.R. Rhein (1980) recommended land use as an “integrative, conceptual, central theme” for environmental education. There are several scientific aspects of land use, but there are also several social studies aspects of land use, such as geography and political science.

Achieving and addressing these standards is imperative to making LUEE a more “usable” curriculum topic for teachers (due to the constant pressure they have to meet the set standards and the need to plan within the standards). The topic of LUEE can be a vehicle to help teachers meet the existing standards instead of being thought of as one more thing to be taught.

LUEE is a topic that provides ample opportunity to address standards and also brings in the element of current issues. It deals with the common components of human interaction with the environment, understanding issues and how decisions are made about these issues, and citizenship skills. It allows students to apply the knowledge learned in class and promotes higher level thinking skills. And most importantly, it is a way to develop and increase active citizenship skills.

**Developing a Conceptual Framework Related to LUEE**

There are several examples of broad themes to follow for the development of a conceptual framework. Each set of themes has its own particular strengths and weaknesses. The key is to find the model that would be the most applicable to build upon to create the desired conceptual framework for LUEE in the social studies classroom.
A concept is defined as an “organizing idea or a mental construct.” (Erickson, 2002). One of its defining attributes is that it is “abstract and broad enough in order to provide for a variety of examples.” (Erickson, 2002). This broadness will allow educators to not simply teach a series of facts, but to instead teach the overall concept with the facts as support for the concept (Erickson, 2002). Additionally, this aspect of broadness will facilitate higher-level thought and problem-solving skills (Erickson, 2002).

Hepburn (1974) wrote that one way to facilitate investigation into a particular environmental issue in the social studies classroom is to provide a framework for studying the issue. This framework can help guide the teacher in the direction and depth of the study of the issue.

There are several examples of structures and themes to follow in the building of a conceptual framework. Many of them are directly or indirectly based on a landmark framework written by Hungerford, Peyton, and Wilke (1980). This framework outlined four main curriculum goals and listed 4 levels for the development of curriculum for EE. They were the following:

1) Ecological Foundations Level
2) Conceptual Awareness Level – Issues and Values
3) Investigation and Evaluation Level
4) Environmental Action Skills Level – Training and Application

The basis for this framework has been used repeatedly and is well established and respected. It also is easily applied to the social studies curriculum.

Michael Brody (1995) developed a conceptual framework for the National Project WET Water and Water Resources. He utilized the Delphi technique to determine the
final (and validated) content of the framework. He initially conducted a review of research and curriculum developed concerning the topic of water. Brody began the research with the idea that, firstly, the major concepts and organizing principles of the topic should be identified and that the principles should be “broad and inclusive”.

The purpose of the framework was to determine the content of the Project WET curriculum and, more generally, to help guide the development of educational materials in the area of water and water resources. The conceptual framework included 80 concepts and consisted of the seven themes.

The K-12 Energy Education Program (KEEP) developed a conceptual framework for K-12 energy education in Wisconsin (1996). The concepts were derived from two other energy frameworks and from physical and environmental science textbooks. Additional concepts were developed to incorporate issues specific to the state of Wisconsin. A steering committee and two focus groups (composed of energy resource management specialists, curriculum planners, and educators) were utilized to review and evaluate the framework.

The KEEP framework had four main themes and was based on the themes building upon each other. There were a total of 59 concepts organized under the four themes.

The World Wildlife Fund created a “Biodiversity Education Framework” for their curriculum “Windows on the Wild” (1999). It was created to “break down the topic of biodiversity into teachable concepts and important skills that can help educators build an effective education program.” The themes were arranged so that they could build upon each other. Each theme had several concepts that addressed the theme question, as well as
more specific subthemes under each concept. The framework was not intended to be a curriculum within itself, but to outline the concepts that could be used to build a comprehensive program. The framework could also be used to aid educators in developing a course or unit that focuses on one aspect of biodiversity.

The framework was developed because it was recognized that both the general topic and specific issues of biodiversity were complex and could be a challenge to teach. There were 72 concepts developed that focused on four main themes:

1) What Is Biodiversity?
2) Why Is Biodiversity Important?
3) What’s the Status of Biodiversity?
4) How Can We Protect Biodiversity?

Learning, Experiences, and Activities in Forestry (LEAF) created a conceptual framework for K-12 forestry education in the state of Wisconsin (2002). It was created to be the structure that the K-12 curriculum would be built around. The themes for this conceptual framework were also arranged so they build upon each other. Also like the Biodiversity framework, the themes were followed by concepts that address the theme question as well as the concepts being further divided into subconcepts. Additionally, definitions were provided for some of the terms to clarify any ambiguous meanings.

The framework "divides forestry education into teachable concepts, organized in a manner that makes them easy to communicate." There are 60 concepts organized under four main themes –

1) What is a forest?
2) Why are they important?
3) How do we sustain?

4) What is the future?

It was decided that this study would use the same broad themes as the World Wildlife Fund Biodiversity Conceptual Framework and the LEAF Forestry Conceptual Framework. Both of these have earned respect in the field of EE and are broadly based on the four main curriculum goals outlined by Hungerford, Peyton, and Wilke in 1980.

Summary

Land use environmental education can be defined as education aimed at developing an understanding of the direct and indirect relationships and impacts between land use decisions and the environment and the realization that the way in which land is used directly affects the environment. The aim of land use environmental education is to produce citizens who have the skills needed to actively participate in land use decisions at both the local and global levels.

Land use is a fact of life, whether explicitly recognized or not (Diamond and Noonan, 1996). Land is also a finite source. Therefore, how we use land today and plan how to use it in the future will greatly effect future generations. The manner in which the land is used has a profound and long-lasting impact on the environment. The well-being of natural systems begins and ends with the land. If growth occurs in a way that is not planned with environmental concerns in mind, the outcome can be disastrous.

In 1999, the State of Wisconsin passed a comprehensive planning law commonly called “Smart Growth.” This law was created in response to increasing concern about the
future growth and development of Wisconsin as well as the lack of comprehensive plans in many communities. The law mandates that the public must be involved in the development of the comprehensive plans.

There are various reasons why people are not more involved with land use planning in their community. One of the main reasons is not understanding how the process of land use planning works. The way to change this is through the education of youth, so that they will grow to become knowledgeable citizens.

Land use environmental education is an excellent way to illustrate the multidisciplinary nature of environmental education. Land use environmental education easily lends itself to the social studies curriculum. It is an opportune area to teach about land use, its effects on the environment, and how citizens can be active and make educated decisions in the planning process.

There are several different themes on which to build a conceptual framework. The goal is to find one that can easily and accurately be applied to the conceptual framework of LUEE.
Chapter 3

Methods

Introduction

The purpose of this study was to develop a conceptual framework for land use environmental education (LUEE) for grades K-12 primarily in the social studies curriculum. This study used quantitative methodologies, which is research that produces numerical data.

This chapter will give an overview of the literature related to the methods used and describe the methods that were employed to develop and validate the conceptual framework for LUEE.

Literature Review of the Methods

This literature review will examine group decision-making and both the Nominal Group and Delphi techniques.

Profile of Group Decision-Making

Utilizing groups to make decisions has been done in many studies and disciplines. There are several characteristics that are unique to groups, as well as advantages and disadvantages to using groups in the decision-making process. This study used groups to develop and validate the conceptual framework.

A group can have many definitions. One definition is “two or more interdependent individuals who influence one another through social interaction” (Forsyth, 1990). Another definition is that a group is “two or more persons who are
interacting with one another in such a manner that each person influences and is influenced by each other person” (Hasling, 1975).

There are several characteristics that are specific to groups. These include interaction (how group members influence each others’ behavior), size (from two people to hundreds), structure (including status and roles), and goals (usually a group forms for a specific reason) (Forsyth, 1990).

There are several reasons why group work can be more effective than independent work. Many times, two heads are better than one (Moore, 1994). Depending on the goal, groups can do things better and more effectively than individuals (Forsyth, 1990). Groups are also good for “pooling intelligence.” Complex problems can have many sides and be even more complicated, due to the subject or problem being value-laden (as many are). Using groups to work on these problems is pooling the intelligence to help come up with a solution or ideas to address the goal. It is also a good idea to use groups if there is concern about the consequences of the research (Moore, 1987). The group that the researcher is working with is more likely to accept the final product and conclusion if they played an active role in the development of the project (Moore, 1994).

There are many factors to consider when deciding which type of decision-making process to utilize. These include the time and cost required to complete the process and the physical proximity of participants (Delbecq et al, 1975).

Group decision-making processes have several characteristics specific to either facilitating or inhibiting group decision-making (Delbecq et al, 1975). One of these is the “role-orientation of groups”, which is the way that the group will focus its social interaction with other group members (either towards social roles or task-oriented roles).
(Delbecq et al, 1975). Individuals will be more able to focus on the task at hand if they are alone, versus having to attend to social roles in a group setting. Another is “normative behavior”, which is the pressure to conform to the group and the true (felt) freedom to express ideas. There is also the “group size and composition”, which is whether the group is composed of either homogeneous or heterogeneous individuals and how large the group is.

**Principles and Strategies for the Use of Nominal Group Technique**

The researcher used a modified Nominal Group Technique (NGT) in this study. The goal of this technique was to receive input from knowledgeable land use professionals to aid in the development of the conceptual framework. The NGT was chosen because the researcher wanted to both generate ideas and to begin to make decisions about which concepts to include in the conceptual framework.

Andre Delbecq and Andrew Van de Ven developed the NGT in 1968. It has been used widely in the human service fields such as education and health (Delbecq et al, 1975; Chapple and Murphy, 1996). NGT is a “structured group meeting …which follows a particular format.” (Delbecq et al, 1975). Moore described it as “a method that allows individual judgments about a topic or issue to be pooled effectively.” (Moore, 1994). The term nominal comes from the fact that ideas are generated silently and individually, and then are shared with the larger group (Scholtes, 1988).

NGT is used for addressing a specific decision-making task or problem. It is a “method for structuring small group meetings that allows individual judgments about a
topic or issue to be pooled effectively and used in situations in which uncertainty or disagreement exists about the nature of a problem and possible solution.” (Moore, 1994).

The primary goal of NGT is to generate ideas (Moore, 1994). The process helps groups generate, develop, and select among ideas (Moore, 1994). NGT is also a structured technique to reach a consensus (Scholtes, 1988). NGT is often used in combination with other group techniques (Moore, 1994). By combining NGT with other processes, group productivity may be enhanced (Moore, 1994).

There are three main objectives of the NGT (Delbecq et al, 1975):

1) To assure different processes for each phase of creativity.

2) To balance participation among members.

3) To incorporate mathematical voting techniques in the aggregation of group judgment.

There are two different phases of creative or judgmental problem solving. The first one is the fact-finding phase. This is the phase of searching for problems and the generation of the data about the problem. The second phase is the evaluation phase. This involves information synthesis and choosing elements.

NGT also assures that each participant is heard and included as part of the process. In other processes, this can be a problem, due to the possibility of one or two individuals dominating the discussion.

And finally, incorporating mathematical voting techniques has been shown to greatly reduce errors in deciphering individual judgments into group decisions.

There are several characteristics specific to NGT. The general format of the four steps of the NGT is as follows (Delbecq et al, 1975, Moore, 1994):
1) Silent and independent generation of ideas in writing.

2) Round-robin feedback from group members to record each idea on a flip chart.

3) Discussion of each recorded idea for clarification and evaluation.

4) Individual voting on priority ideas with the group decision being mathematically derived through rank-ordering or rating.

The four steps of the NGT have specific instructions to each step and reasons for these instructions. The facilitator(s) of the NGT plays an imperative part of the process and needs to follow several rules and instructions (Moore, 1994).

For step one, it is imperative that there is no speaking (Moore, 1994). The facilitator needs to make sure there is silence and needs to follow the rule herself or himself by not speaking.

For step two, it is important that the facilitator conveys the idea that the list belongs to the participants and not to the facilitator (Moore, 1994). It is also very important that the facilitator tapes the list of generated ideas to an area where everyone can see it.

For step three, the facilitator reads each of the items aloud in sequence and invites comments on that particular item (Moore, 1994). It is important that the facilitator limits the time for comment on each item so the group stays on task and does not waste time on a conflict or argument.

And for step four, the facilitator needs to make sure that the votes are quickly tallied and that the results are easily interpreted (Moore, 1994). Multivoting is one way to vote to select the most important items from a list and is also a structured way to reach a
consensus (Scholtes, 1988). It involves allowing each participant to choose several items that they would like to emphasize or feel are the most important. Each participant is allowed to choose at least one-third of the total items on the list (Scholtes, 1988). Items are eliminated if they receive the fewest number of votes.

The facilitator has an imperative role to play in the start of the NGT session. They make the opening statement, which sets the mood for the whole process. There are three elements that need to be included in the opening remarks (Moore, 1994):

1) The importance of the task and how important each of the perspectives of the participants are to the project.
2) The overall goal of the session and how the final results will be used.
3) Overview of the day and summary of each of the steps of the NGT.

The set-up of the room for the NGT process is also significant (Delbecq et al, 1975). If there are several groups, the tables need to be far enough away from each other that the groups will not interrupt one another. It is also helpful to have the tables set up in a “U”-shape with the flipchart at the top of the “U” to ensure all group members are able to see the ideas written and are included as part of the group.

Group size is also an important element of the NGT. The suggested numbers are five to nine participants per group (Delbecq et al, 1975). This number is chosen to optimize the group interaction and to ensure that all participants are heard. If there are more than nine participants, the head facilitator should begin with the large group for the opening statement, then break into smaller groups for simultaneous sessions.

The expected outcome of the NGT process is the generation of ideas. It is important to have a focus question for the session (Moore, 1994). The question should be
as simple as possible, but also complex enough to elicit responses and ideas (Moore, 1994).

It has been found that groups will be more productive and effective if individuals have an opportunity to think and write before they contribute to the group (Moore, 1994). Also, it is beneficial to collect all ideas before discussing them, which prohibits the group from getting stuck on the first idea and never having the chance to hear the other ideas.

NGT also improves the “group memory”. This is when a record of ideas on sheets of paper is posted at all times, which keeps the ideas in the memory of group members during the entire process. NGT also utilizes the group idea-building advantage. Group members can build on the work of other members. And finally, NGT capitalizes on the sense of ownership that is felt due to the contributions of every group member participating and giving their ideas.

One of the advantages of working with NGT is that it overcomes many of the inherent problems and behaviors associated with the traditional problems in groups (Moore, 1994). This includes the problem of one or two members in the group being “verbally aggressive” and essentially taking over the idea generation process. There is also the problem of status within a group and the group listening only to the members with the highest ranking. Each individual in the NGT has a part to play and is able to have their ideas heard, regardless of aggressiveness or status.

NGT is also superior to other group techniques in the manner that it works well in “stranger groups” where the members of the group do not know each other. Once again, all voices and ideas will be heard, regardless of the level of the relationship of participants to each other. Additionally, NGT ensures that the group will not get stuck on
one or two ideas only. The facilitator is responsible to keep the group moving along equally for each idea.

One of the main disadvantages of the NGT is that very verbal people may feel stifled and uncomfortable with the level of silence and structure for the process (Moore, 1994). Also, significant time can be required for the group to assemble and go through the process. Therefore, researchers may be limited in the scope of participants (it would be difficult to bring participants together from all over the country) (Delbecq et al., 1975). And finally, NGT relies heavily on a competent facilitator for the process to run smoothly and accurately. Without this leadership, the process could prove to be frustrating and not produce the desired (and accurate) outcome (Delbecq et al., 1975).

Some of the alternatives to NGT include the use of focus groups. Focus groups are a method of using groups to gain insight to a problem or decision (Moore, 1994). Focus groups are carefully planned discussions that have the goal of gaining information about a topic from the participants (Krueger, 1988). Many times, focus groups are conducted several times with the same group to gain more information (Krueger, 1988). Some of the advantages of focus groups include that the focus group is generally social-oriented research, which many people respond to favorably (Krueger, 1988). Another is that focus groups offer the opportunity to observe a large amount of interaction on a topic in a limited period of time (Morgan, 1988). Also, it has been noted that the give-and-take of this interaction leads to relatively spontaneous responses from participants as well as producing a fairly high level of participant involvement (Bellenger et al., 1976).

Focus groups also promote group interaction and encourage ideas to be shared and developed (Krueger, 1988). They allow the facilitator to probe into some of the
reasons why participants feel the way that they do (Krueger, 1988). Moore believes that the NGT is actually a “tool that can be utilized to help achieve goals of a focus group.” (Moore, 1994).

The researcher of this study conducted a modified NGT, and therefore did not follow the exact format published.

**Principles and Strategies for the Use of the Delphi Technique**

The researcher utilized a modified Delphi Technique in this study. The goal of this was to receive input from knowledgeable professionals to aid in the development of the conceptual framework. The Delphi technique was chosen because the researcher wanted to reach a group consensus about which concepts to include in the conceptual framework.

Norman Dalkey and his associates at the Rand Corporation created the Delphi Technique in 1950 (Delbecq et al, 1975). It is named after the Oracle at Delphi, Greece, due to the fact that some of the first uses of the Delphi were to forecast future events (Moore, 1987). It was initially used at RAND to answer the question – “How many A-Bombs of the type that destroyed Hiroshima would it take to cut the U.S. national gross product by 75 percent?” (Moore, 1987).

The overall goal of the Delphi technique, simply put, is used to reach a group consensus. It had been described as a “method for the systematic solicitation and collation of judgments on a particular topic through a set of carefully designed sequential questionnaires interspersed with summarized information and feedback of opinions derived from earlier responses” (Delbecq et al, 1975). Linstone and Turoff (1975)
described the Delphi as “a method for structuring a group communication process so the process is effective in allowing the individuals, as a whole, to deal with a complex problem”. The Delphi technique is a “method of eliciting and refining group judgment” (Dalkey, 1969). And finally, it has been described as a “really quiet, thoughtful conversation, in which everyone gets the chance to listen.” (Thomas, 1979). As with NGT, the rationale is that two (or more) heads are better than one (Moore, 1987). The Delphi technique is useful to use whenever it is desired to have pooled judgment (Moore, 1987).

The Delphi technique’s uses have expanded greatly since the original use. It can be versatile, depending on the goal of the researcher (Delbecq et al, 1975). As mentioned, it is often used in forecasting future events (Moore, 1987). It has also spread into the fields of business, medicine, science, and education (Martin and Frick, 1998). In education, it is used for a wide variety of purposes, including curriculum development (Blair and Uhl, 1993).

There are three types of Delphi. The first is the conventional Delphi, which is the “pencil-and-paper” version (Linstone and Turoff, 1975). The research team designs a questionnaire and sends it to the selected participants. The participants return it, the results are summarized, and the research team creates a revised questionnaire, based on the results of the first questionnaire (Linstone and Turoff, 1975).

The second type is termed “Delphi Conference” or “Real-time Delphi” (Moore, 1987). It is similar to the conventional Delphi, but differs in the fact that it is done in a shorter amount of time, usually with the aid of computer conference (Moore, 1987).
And finally, there is the policy Delphi (Moore, 1987). The policy Delphi is utilized to “ensure that all possible options have been put on the table for consideration, to estimate the impact and consequences of any particular option, and to examine and estimate the acceptability of any particular option” (Linstone and Turoff, 1975).

There are particular criteria that can be used to decide if a Delphi should be used over another research technique. They are outlined by Linstone and Turoff (1975) and include:

1) The problem does not lend itself to precise analytical techniques but can benefit from subjective judgments on a collective basis.

2) The individuals needed to contribute to the examination of a broad or complex problem have no history of adequate communication.

3) Time and cost make frequent group meetings infeasible.

4) Disagreements among individuals are so severe or politically unpalatable that the communication process must be refereed and/or anonymity assured.

There are also three conditions when the Delphi should not be used. These conditions include inadequate time to conduct the Delphi, participants have difficulty in reading and writing, and/or the participants are not motivated (Delbecq et al, 1975).

There are three main components that must be part of a Delphi. These include the participants being anonymous, communication between the participants being orchestrated by the research team and through written questionnaires and feedback reports (controlled feedback), and statistical group response (Dalkey et al, 1972).
Anonymity is a way of reducing the effect of a few dominant participants (Dalkey et al, 1972). Controlled feedback, which includes summarizing the responses between rounds, is used to decrease the amount of semantic “noise” between participants (Dalkey et al, 1972). And finally, the use of statistical group response is to make sure that the opinion of every participant is represented (Dalkey et al, 1972).

The participants in the Delphi must be experts in the field (Moore, 1987). An expert is defined as “someone who possesses the knowledge or experience necessary to participate in the Delphi” (Moore, 1987). Expertise is the desired goal for deciding who will participate and this is one factor that separates the Delphi from other forms of survey research (Blair and Uhl, 1993). A nomination process is often utilized to select respondents (Delbecq et al, 1975). The researcher solicits nominations of experts in the field and invites them to participate (Delbecq et al, 1975). The initial nominations can also come from an advisory group (Moore, 1987).

The number of participants in the Delphi can vary, depending on the composition of the “expert” group (Delbecq et al, 1975). With a homogeneous group (experts coming from the same field), it is shown to be effective to have anywhere from 15-30 people and with a heterogeneous population (people coming from different social and professional levels), anywhere from 5-10 people (Delbecq et al, 1975). Research experience indicates that few new ideas are generated if there are more than 30 participants in a homogeneous group (Delbecq et al, 1975).

On the average, the larger the group, the more accurate the answer is (to a value question, assuming there is a “correct” answer) (Dalkey et al, 1972). As well, the larger
the group, the greater the reliability of the answer – the more likely the same answer would be found with a similar group (Dalkey et al, 1972).

There can be several steps involved in completing a Delphi study. They include (Delbecq et al, 1975):

1) Developing the Delphi question(s) and distributing it to selected respondents.

2) Respondents independently respond to questionnaire and return it.

3) Analysis of questionnaire number one, development of questionnaire number two (based on results of questionnaire number one) and distribution to respondents.

4) Respondents vote on ideas and return questionnaire.

5) Analysis of questionnaire number two.

6) Prepare final report/conclusions.

There can be as few as two mailings or as many as six (Delbecq et al, 1975). The process stops when consensus has been reached or when sufficient information exchange has been gained (Delbecq et al, 1975). The details of the technique depend on the nature of the problem and the constraint on the human and physical resources available (Delbecq et al, 1975).

The Delphi can be modified according to the needs of the researcher (Delbecq et al, 1975). One modification includes eliminating the need for questionnaire one by utilizing a technique like NGT to identify items and instead starting with questionnaire number two (Delbecq et al, 1975).
The Delphi questionnaire can utilize different types of scales for participants to use to rate their agreement or disagreement. Generally, there is simple ranking, the rating (Likert-type) scale, and pair-comparisons.

In a study by Scheibe, Skutsch, and Schofer (1975), it was found that participants preferred the rating scale to the simple ranking or pair-comparisons. The rating scale was found to be "quick, easy to comprehend, and psychologically comforting." The Likert scale has been one of the most widely and successfully used techniques to measure attitudes (Borg and Gall, 1983). It assesses attitudes toward a topic by asking respondents to indicate whether they strongly agree, agree, are undecided/neutral, disagree, or strongly disagree with statements about a topic (Ary et al. 1990). It is important to balance all scales in a response, so there are an equal number of options on either side of the neutral position (Berdie et al., 1986). An advantage of the Likert scale is that it produces quantitative data and therefore, points of central tendency and variability can be calculated (Ary et al., 1990).

The Likert-type scale has been utilized in several Delphi studies (Frick, 1993, Wells, 1994, Klutschkowskii and Troth, 1995, and Blair and Uhl, 1993).

There are several ways to analyze the results of a Delphi questionnaire. In general, they consist of a summary or listing of comments made and either a list of ideas generated or a measure of central tendency and variability (Delbecq et al, 1975). A summary of the comments made is acceptable if there are a large number of participants that wrote comments (Delbecq et al, 1975). Comments of the previous questionnaire are included as a form of communication between the respondents (Delbecq et al, 1975).
The Delphi technique produces data that can be described quantitatively (Dalkey, 1969). The average amount of change in the group median, mean, and standard deviation from the first to the second round of the questionnaires can serve as a meaningful estimation of the accuracy of the group response (Dalkey, 1969).

Mathematical analysis of the questionnaires generally includes measures of central tendency and variability. A measure of central tendency is a "single numerical value that is used to describe the average of an entire sample of scores" (Borg and Gall, 1983). The mean, median and mode are measures of central tendency (Borg and Gall, 1983). The mean is computed by adding up all of the scores in the distribution and dividing them by the number of scores (Gravetter and Wallnau, 1996). The median is the score that divides the distribution exactly in half (Gravetter and Wallnau, 1996). And the mode is the score that occurs most commonly in the distribution (Gravetter and Wallnau, 1996).

The mean is the most often used measure of central tendency and gives a good representative value because it uses every score in the distribution (Gravetter and Wallnau, 1996). Computing the mean also allows subsequent computation of more advanced statistics, such as standard deviation (Borg and Gall, 1983).

Measures of variability include standard deviation (Borg and Gall, 1983). Standard deviation uses the mean of the distribution as a reference point and measures the variability by calculating the distance between each score and the mean (Gravetter and Wallnau, 1996). It approximates the average distance from the mean (Gravetter and Wallnau, 1996).
There are several advantages to using the Delphi technique. Issues can be clarified and the final result of the multiple questionnaires is more likely to reflect careful thought than a single questionnaire (Borg and Gall, 1983). It also is very flexible, allowing participants to respond to the questionnaire whenever and wherever they choose (Delbecq et al., 1975). There is also no travel time required for participants to attend meetings about the topic (Delbecq et al., 1975). Participants are anonymous, which can reduce the influence of certain individuals (especially when there can be polarization of individuals or small groups within the larger group) (Moore, 1987). It also allows strangers to communicate effectively and prevents unproductive arguments (Linstone and Turoff, 1975).

Additionally, it allows each individual to have their voice heard and to express their ideas (Linstone and Turoff, 1975). Dalkey, et al. (1972) outlined three reasons why face-to-face interaction can be detrimental to “pool” individual opinions. One of the reasons was the influence of dominant individuals, which simply could be the person who talks the most or the loudest (Dalkey et al., 1972). Another was the semantic noise that happens in face-to-face interaction. This is the discussion that has to do with individual and group interests, versus discussion about the topic or problem (Dalkey et al., 1972). And finally, there is the well-documented group pressure for conformity. Participants may feel group pressure to move towards the group consensus, even when they feel differently (Dalkey et al., 1972).

The Delphi can also require less time for participants to respond to the questionnaire than to participate in a workshop or extended meeting (Dalkey et al., 1972). The Delphi can be motivating to participants because it releases them from the normal
social constraints of group-decision making (due to the anonymous nature of the Delphi) (Dalkey et al, 1972).

There are also some disadvantages to utilizing the Delphi technique. The Delphi can take a great deal of time to complete (Borg and Gall, 1983). Another disadvantage is the lack of face-to-face communication, which can sometimes decrease the motivation of participants (Delbecq et al, 1975). There is also not an opportunity for verbal clarification of the comments generated, which could lead to the misunderstanding of comments generated (Delbecq et al, 1975). Finally, there is a possibility of manipulation of the responses generated by the participants by the researcher (Moore, 1987).

Michael Brody developed a conceptual framework for the National Project WET water and water resources (1995). He utilized the Delphi approach to determine the final (and validated) content of the framework.

The Delphi participants were selected by a nomination process that included educators who had experience in natural resource education as well as content specialists who studied and managed the USA’s water resources.

There were three main reasons why the Delphi process was used in the development of the Project WET framework. These included the fact that determining the content of the framework benefited from subjective judgment on a collective basis (vs. analytical techniques), the participants in the Delphi had no history of communication with each other and came from diverse backgrounds (in terms of expertise and experience), and time and cost prevented meetings face-to-face.

The researcher of this study conducted a modified Delphi technique, and therefore did not follow exact format published.
Research Methods Chosen for Study

The NGT and Delphi were chosen for the study because they met the needs and goals of the research. Both have also been used in the field of education for curriculum development. The NGT was chosen because the researcher wanted to generate ideas and to begin to make decisions about which land use concepts to include in the conceptual framework. The Delphi technique was chosen because the researcher wanted to reach a group consensus about which land use concepts to include in the conceptual framework. Both of these techniques also can serve as validation of the decisions made as to which concepts to include in the framework. They also work well together, starting with the NGT to initially generate ideas and ending with the Delphi to refine the ideas and make decisions about which concepts to include in the framework.

Creation of the Conceptual Framework

Sub-goal 1: Identify and collect information on current land use environmental education topics and materials.

In order to determine what land use topics are featured in books, websites, and databases and what materials have been created, a comprehensive and systematic search was conducted to review current LUEE topics and materials.

Step one was done through searches of several databases (such as ERIC, ENC, and Dissertation Abstracts International).

Step two was accomplished by searching websites to gather information and identify other possible resources.
Step three involved reviewing books (both for professionals and the general public) to survey what topics about land use are featured repeatedly.

Step four was reviewing information and books used to teach land use classes at the UW-Stevens Point.

And step five was reviewing several resources that were recommended by land use experts in the Stevens Point area as well as by professional contacts in the state and country.

The process was considered systematic for the reason that there were a series of keywords applied to each search of the databases and websites. This included the words “Land Use”, “Land Use Education”, “Environmental Education” and “Social Studies”. Any combinations of these words were used in the searches, based on how the particular database or website set up their search page.

As the resources were reviewed, notes were made on the topics highlighted by skimming the introduction, index, and the resource itself.

Materials to review (such as the books) were secured through the UW-Stevens Point library, other UW-System libraries, and personal sources.

This review occurred in the spring of 2002 through the fall of 2002.

Sub-goal 2: Develop a set of the land use environmental education concepts based on the research findings in sub-goal one.

Data collection from sub-goal one was gathered and organized to create concepts for a rough draft of the conceptual framework. The skeleton of the framework was

All of the land use topics that were recorded in sub-goal one were organized under similar content. The written notes were reviewed to find the dominant topics that appeared repeatedly. Notecards were then titled with these topics as headings and all information about that particular topic was recorded onto the notecard. A synopsis of all of the information from the notecards was then used to form one or more concepts. This information was put into the computer and the process of revising the concepts began.

The first draft of the framework was completed in October 2002. Members of the graduate committee then reviewed the framework several times to verify if the concepts were indeed “concepts” (versus definitions, etc.) and for grammar, subjectivity (that the concepts were as value-free as possible), and accuracy.

Refining, Revising, and Validating the Conceptual Framework

Sub-goal 3: Conduct a modified Nominal Group Technique workshop of Wisconsin land use stakeholders, professionals, and educators to begin the process of identifying and validating the concepts that will be included the framework.

To begin the process of refining and selecting which concepts should be included in the conceptual framework, a modified Nominal Group Technique (NGT) workshop was conducted.

The first step was to solicit nominations for participants in the NGT workshop. Members of the graduate committee produced a list of Wisconsin land use stakeholders
(both organizations and individuals) to contact. The list was sent around to various land
use professionals in Wisconsin to ensure that all of the pertinent ones were listed and to
add any suggestions of other potential participants.

Four hundred and twenty-five (425) letters were then sent to land use
professionals throughout the state, explaining what the project was and why they were
chosen to participate. (See appendix A for a copy of the letter.) Letters were sent to state
resource agencies, University of Wisconsin - Cooperative Extension agents and
specialists, private nature centers, UW-System professors and students, conservation
organizations, private consultants, Wisconsin Builders and Realtor associations,
educational organizations, and state and regional planning associations. The letter had
three purposes – to invite them to participate in the NGT workshop, to invite them to
participate in the Delphi technique, and/or to solicit nominations for participants in either
the NGT or Delphi. Potential participants were invited to contact the researcher by email,
telephone, or mail within three weeks of the dated letter. Any nominations were recorded
and an identical letter was sent to the nominated individuals. (There were a total of 14
nominations.) Final decisions on who to participate in the NGT workshop were based on
suggestions by members of the graduate committee and by the willingness of potential
participants to participate.

Approximately two weeks before the NGT workshop, participants were sent
information about the logistics and goals of the workshop. (See appendix B.)

The majority of the participants were land use professionals from the State of
Wisconsin. Additionally, a few formal and nonformal educators participated. There were
a total of 37 participants, 10 of them women and 27 of them men. All had at the minimum an undergraduate degree. Participants are listed in appendix C.

The NGT workshop was held on December 13, 2002 at the University Center on the UW-Stevens Point campus and lasted approximately six hours. (See appendix D for a schedule of the day and other handouts provided to the participants.) As participants entered the meeting room, they were given an Informed Consent to Participate in Human Subject Research form to sign, as mandated by the UW-Stevens Point Institutional Review Board for the Protection of Human Subjects. This requirement is done to ensure that the participants are aware of the research being done and they are aware of their rights as a participant.

At the beginning of the workshop, participants were given an overview of the entire project and reminded that the goal of the day was to identify the concepts that K-12 students should be taught about land use in Wisconsin. After two speakers from the University, an icebreaker, and introductions, the facilitator gave an overview of the process and instructions of the day. They were told that their job would be to break out into small groups to look over the concepts and to suggest changes, omissions, and additions as needed and also to rate the top picks for inclusion into the final framework.

Participants then spent 45 minutes reviewing the concepts as an introduction to the concepts (to get the broad picture). They were supplied listings of the concepts and were either able to review them at their seats or to get up and review them posted around the room. They were encouraged to add any concepts that they felt were missing and/or to suggest changes. Discussion was discouraged among the participants.
Participants were then split into one of four groups. Groups of 9-10 people were organized ahead of time to ensure that participants from several different organizations and agencies (and viewpoints) were represented in each group. Each of the four groups had 30 minutes at the four main themes to read through concepts (including the additions and suggested changes from the first exercise) and to discuss them as a group. There was a facilitator present at each of the themes to record ideas and to moderate discussion as needed.

The workshop ended by a short brainstorming session about ideas on how to obtain funding to create the curriculum in the future and by explaining the next steps in the process.

The complete NGT process was conducted December 2002 to February 2003.

Sub-goal 4: Conduct a modified Delphi technique to continue with the process of identifying and validating which concepts will be included in the conceptual framework.

To continue with the process of refining and selecting which concepts should be included in the framework, a modified Delphi technique was conducted.

Approximately two weeks before the first round of the survey was sent out, participants were sent information about the logistics and goals of the Delphi process. (See appendix E.)

The majority of the participants were land use professionals from the State of Wisconsin. Additionally, a few formal and nonformal educators participated. All potential participants were sent an Informed Consent to Participate in Human Subject Research form to sign, as mandated by the UW-Stevens Point Institutional Review Board.
for the Protection of Human Subjects. This requirement is done to ensure that the participants are aware of the research being done and they are aware of their rights as a participant. A postage-paid envelope was included in the mailing to facilitate and encourage the return of the consent form.

The first round of the Delphi survey was sent out and participants were given 5 working days to complete it, specifying the date. Participants were emailed a reminder after 2 days, politely reminding them that the goal was to have the survey completed by the end of the five days. (The reminder had the ultimate goal of increasing the response rate.) There were a total of 33 participants, 12 of them women and 21 of them men. All had at the minimum an undergraduate degree. Due to the anonymity of the Delphi, participating organizations (versus names) are listed in appendix F.

They were given instructions on how to complete the survey, which involved rating the concepts on a Likert-type scale of -2 (strongly disagree that this concept should be included in the framework) to 2 (strongly agree that this concept should be included in the framework). They were also encouraged to comment on any of the concepts. This entire process was done via email, though participants were given the option of mailing it if preferred. (See appendix G.)

Data from the first round of the Delphi was compiled. The ratings of -2 to 2 for each concept were recorded onto paper and entered into a statistics computer program. Measures of central tendency and variability were computed. Comments from the participants were also recorded. All of this information was used by the graduate committee to eliminate and modify remaining concepts.
The second round of the Delphi was sent out approximately 10 days after the first mailing was due in and the participants were given five days to respond, specifying the date. Participants were emailed a reminder after 2 days, politely reminding them that the goal was to have the survey completed by the end of the five days. (The reminder had the ultimate goal of increasing the response rate.) There were a total of 29 participants, 12 of them women and 17 of them men. Due to the anonymity of the Delphi, participating organizations (versus names) are listed in appendix F.

They were given the same instructions on how to complete the survey that they received in the first round. In addition to the concepts, each participant was given their personal previous rating in the first round and the group mean from the first round for each of the concepts. Comments from the first round about the concepts were also included. (Comments regarding the re-wording or re-phrasing of the concepts were not included.) The participants were also encouraged to make additional comments. This entire process was done via email, though participants were given the option of mailing it as well. (See appendix H.)

Data from the second round of the Delphi was treated in the same manner as the first round.

The complete Delphi technique was conducted February 2003 to April 2003.

Sub-goal 5: Final validation the conceptual framework for land use environmental education
A draft of the conceptual framework was produced with the information gathered in sub-goals 1 through 4. Further development and validation of the framework occurred through members of the graduate committee.

Step one was additional revision, incorporating the notes and suggestions by members of the graduate committee.

Step two was the final changes to the conceptual framework that were reviewed by members of the graduate committee.

The final validation of the conceptual framework was completed in April 2003.

Summary

This study utilized different data collection and analysis methods to develop and validate the LUEE conceptual framework. Quantitative methods of analysis were employed to interpret the data and develop a final conceptual framework.

The following methods were employed:

1. A comprehensive and systematic search was conducted to review current LUEE topics and materials in order to determine what land use topics are featured in books, websites, and databases and what materials have been created.

2. Data from the comprehensive search was gathered and organized to create concepts for the rough draft of the conceptual framework.

3. A Nominal Group Technique workshop composed of Wisconsin land use professionals, stakeholders, and educators was conducted to begin the
process of refining and selecting which concepts should be included in the conceptual framework.

4. A modified Delphi technique composed of Wisconsin land use professionals, stakeholders, and educators was conducted in order to continue with the process of refining and selecting which concepts should be included in the framework.

5. Final revisions and the final version of the framework were validated by members of the graduate committee.

The Nominal Group Technique was chosen because the researcher wanted to both generate ideas and to begin to make decisions about which concepts to include in the conceptual framework. The Delphi technique was chosen because the researcher wanted to reach a group consensus about which concepts to include in the conceptual framework.
Chapter 4

Results and Discussion

The goal of this project was to develop a conceptual framework for land use environmental education (LUEE) for grades K-12 primarily in the social studies curriculum.

This chapter reports the results and discusses the results of the five different methods employed to develop the framework.

Sub-goal 1: Identify and collect information on current land use environmental education topics and materials.

Searches of several databases (such as ERIC, ENC, and Dissertation Abstracts International) and websites were conducted. Books for professionals, the general public, and for land use classes at the UW-Stevens Point were surveyed to find the central topics about land use featured. Finally, several resources that were recommended by land use experts in the Stevens Point area as well as by professional contacts in the state and country were reviewed for principal topics as well.

A listing of the books and resources utilized is included in appendix I.

Sub-goal 2: Develop a set of the land use environmental education concepts based on the research findings in sub-goal one.

An initial set of concepts was developed based on the information gathered in sub-goal one. The concepts were revised multiple times, based on the suggestions of
sub-goal 3: Conduct a modified Nominal Group Technique workshop of Wisconsin land use stakeholders, professionals, and educators to begin the process of identifying and validating the concepts that will be included in the framework.

Participants in the modified Nominal Group Technique (NGT) workshop added numerous concepts and ideas during the duration of the workshop. Initially, it was planned that the participants would "vote" on their top picks for inclusion of concepts into the framework at the end of the workshop. It was quickly evident, though, that due to the volume of written comments and additions of concepts, voting would be difficult (and possibly inaccurate) before the suggested changes were organized into a more readable format and to ensure that all of the comments were given equal consideration. It was decided by the facilitators that the voting would occur at a later date via email. Because there was extra time due to the voting step being eliminated, it was also decided that the third and fourth rotations would increase to 45 minutes (both the first and second rotations were 30 minutes).

At the completion of the workshop, all of the comments generated were gathered and categorized according to which of the four main themes it corresponded to. The facilitators then reviewed the comments omitting the suggestions that were personal opinions, inaccurate, or duplicative of other comments or concepts, adding new suggested
concepts, and combining concepts. The goal of this exercise was to have the concepts in a form that could be voted on by the participants at a later date.

Workshop participants were sent the revised concepts with directions on how to vote. (The directions for voting are included in appendix K.) The entire framework was organized into four main themes and within each of those areas, they were given a certain number of “votes.” There were a total of 125 concepts to vote on and they were instructed to vote on a total of 42 different concepts. The number of votes was determined by the equation $X/3$, where $X$ is equal to the total number of concepts in that particular theme.

The following were the four themes and the number of votes allowed per theme:

- Theme 1 – How do we use land? – 21 votes
- Theme 2 – How are decisions made regarding land? – 5 votes
- Theme 3 - What are the effects of land use decisions? – 5 votes
- Theme 4 - How do we manage land? – 11 votes

Therefore, they voted on each theme with a limited number of votes permitted in each of the four sections. They were permitted to vote for a concept only once.

This entire process was done via email, though participants were given the option of mailing it as well. All but one participant chose to send the researcher the results via email. The one participant printed off the concepts and gave them in person to the researcher with her choices indicated.

NGT participants were given approximately 10 days to compete this exercise. Comments on the concepts were discouraged; instead, participants were advised to save any comments for the Delphi technique in the next step of the process.
Of the 37 people that participated in the workshop, a total of 30 voted for the concepts (a 82% response rate).

The votes of the respondents were tallied. The maximum number of votes a concept received was 23 and only one concept received 23 votes. The minimum number of votes a concept received was 1 and two different concepts only received one vote each.

The concept that received 23 votes was “The land use decisions in one community or even a single county can affect the neighboring communities and counties – the effects of certain land use practices are not contained by geographical or political boundaries.”

The two concepts that received only one vote apiece were “Transportation is vital for the economy” and “Interpretation of the 5th Amendment has changed over time.”

It was decided to eliminate the concepts that received 3 or fewer votes. This number was chosen due to this being the natural cut-off point of the low number of votes. The difference between 3 and 4 votes was a 150% increase (four concepts received only 3 votes, while ten concepts received 4 votes). Using this cut-off point, 11 concepts were eliminated, bringing the total number of concepts to 114.

Sub-goal 4: Conduct a modified Delphi technique to continue with the process of identifying and validating which concepts will be included in the conceptual framework.

Participants in the modified Delphi technique were emailed the survey. In the first round, all but one participant chose to send the researcher the results via email. The one participant printed the concepts, rated them, and sent them by postal mail to the researcher.
For each of the two rounds, all of the responses were entered into a statistics software program (SPSS). Each respondent was assigned a number and their ratings of -2 to 2 for each concept were entered into SPSS. Both measures of central tendency and variable statistics were computed. Their written comments were also recorded, identified by the same number that was given to their ratings.

There were three consecutive steps taken to eliminate concepts, based on the rating and comments from each of the two rounds. The first was based on statistics. All concepts in the lower quartile of the range of the means were eliminated. This was chosen because it took into account the actual results of the process, versus picking an arbitrary number as a cut-off point (such as 0.50). The second step was the elimination of concepts based on inaccuracy or subjectivity as reflected in the comments of the participants. And lastly, concepts were re-worded or combined with other concepts as suggested by the comments of the participants. Members of the graduate committee reviewed and approved the changes in all three steps.

**Delphi Survey Results for the First Round**

There were 33 respondents in the first round of the Delphi. Forty-five were invited to participate, producing a 73% response rate. Respondents were not given a stipend for their response to the survey due to financial constraints of the project.

In the first round, the means of the ratings (-2 to 2) ranged from 0.3030 to 1.5625 for the 114 concepts. The lower quartile ranged from 0.3030 to 0.617875. There were a total of 23 concepts eliminated due to being in the lower quartile of the range of the means. An additional 7 concepts were eliminated due to inaccuracy, subjectivity, or the
result of being combined with other concepts. This brought the total number of concepts
down to 84 for the second round. The standard deviations ranged from 0.61699 to
1.53062. See appendix L for individual statistics and the comments for each of the
concepts. (Please note that only selected comments are included in the appendix, for
reasons of duplication and applicability.)

<table>
<thead>
<tr>
<th>Number of Respondents</th>
<th>Range of Group means of ratings</th>
<th>Range of Group medians of ratings</th>
<th>Range of standard deviation of ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>0.3030 to 1.5625</td>
<td>0.00 to 2.00</td>
<td>0.61699 to 1.53062</td>
</tr>
</tbody>
</table>

The concepts with the two highest means of the ratings were:

- **Land use decisions affect the cost of government infrastructure.** (mean = 1.5625)
- **Local government has the power to regulate land use.** (mean = 1.5455)

The concepts with the two lowest means of the ratings (and thus were eliminated) were:

- **Lack of personal rights in land use has tended to correlate with lack of control over one’s personal life—land ownership was, and is still sometimes, seen as a symbol of freedom and a measure of wealth.** (mean = 0.3030)
- **The origins of Federal lands are from land acquisition by purchase, treaty, war, and eminent domain.** (mean = 0.3750)
Delphi Survey Results for the Second Round

There were 29 respondents in the second round of the Delphi. Thirty-three participated in the first round, producing an 88% response rate for the second round. Due to the initial low response rate (19 out of 33), an additional 3 working days were given to return the completed second round. This was done in hopes of having a higher response rate. This was successful and raised the response rate to 29 (an additional 10 responses were received in the 3 days). As previously, respondents were not given a stipend for their response to the survey due to financial constraints of the project.

There was a participant error reported to the researcher in the second round of the Delphi. One participant alerted the researcher to the fact that he reversed the order of the ratings in his first mailing, after he received the second mailing and saw what his recorded responses were. Therefore, he rated a concept “-2” when he really meant it to be rated as a “2”. Because he realized this after the round one concepts were eliminated and the second round had already been sent out, no actions were taken to correct his mistake. (Members of the graduate committee were alerted to this fact and they supported the decision of no action.) The second round reflected his correction of the mistake.

In the second round, the means of the ratings (−2 to 2) ranged from 0.000 to 1.7241 for the 84 concepts. The lower quartile of the mean ranged from 0.000 to 0.4310. There were a total of 7 concepts eliminated due to being in the lower quartile of the range of the means. An additional 8 concepts were eliminated due to inaccuracy, subjectivity, or the result of being combined with other concepts. This brought the total number of concepts down to 69. The standard deviations ranged from 0.50123 to 1.30176. See appendix M for individual statistics and comments for each of the concepts. (Please note
that only selected comments are included in the appendix, for reasons of duplication and applicability.)

<table>
<thead>
<tr>
<th>Table 2: Summary of Results from Round Two of the Delphi Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Respondents</td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td>29</td>
</tr>
</tbody>
</table>

The concepts with the two highest means of the ratings were:

- Public participation is an important part in making land use decisions. (mean = 1.7241)
- Local governments have the power to regulate land use. (mean = 1.6552)
- Land use decisions involve balancing public interests and private rights. (mean = 1.6552)

The concepts with the two lowest means of the ratings (and thus were eliminated) were:

- Land supports plant life, which is essential for human life. (mean = 0.0000)
- The Wisconsin Comprehensive Planning Law (Act 9) established a new expanded role for planning in Wisconsin. (mean = 0.0000)
- Land use is many things to many people. (mean = 0.1379)

Change in Standard Deviations in the Delphi Process

When comparing the results of round one and round two of the Delphi survey, there was a general decrease in the standard deviation of the concepts - 81 out of 84 (96%) showed a decrease in the standard deviation. In the first round, the standard
deviations ranged from 0.61699 to 1.53062. In the second round, they ranged from 0.50123 to 1.30176. This shows a decrease in the overall variability of the ratings of the concepts. This decreased variability can be viewed as a general consensus of the participants in the Delphi as to which concepts should be included in the conceptual framework. (For a comparison of the standard deviation results for the two rounds see table 3.)

Table 3: Comparison of the standard deviation of concepts from Delphi round one to Delphi round two

<table>
<thead>
<tr>
<th>Concept number</th>
<th>Round one Standard Deviation</th>
<th>Round two Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.53062</td>
<td>1.30176</td>
</tr>
<tr>
<td>2</td>
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<td>13</td>
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<td>0.68589</td>
</tr>
<tr>
<td>Concept number</td>
<td>Round one Standard Deviation</td>
<td>Round two Standard Deviation</td>
</tr>
<tr>
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<td>-----------------------------</td>
<td>-----------------------------</td>
</tr>
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<td>-------------------------------</td>
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There was a slight increase in the standard deviation of three of the concepts.

They were the following three concepts:

1. **Scattered development patterns can lead to increased dependence on automobiles.**
   (first round = 1.05349, second round = 1.05979)

2. **Clean air, clean water, and more efficient and compact development are all at least partially based on sustainable land use.**
   (first round = 1.28225, second round = 1.29322)

3. **The public cannot act effectively in the realm of land use unless they are well informed about the general process and proposed future actions.**
   (first round = 1.17099, second round = 1.18072)

There were various concerns voiced about these three concepts.
For the first concept, "Scattered development patterns can lead to increased dependence on automobiles.", comments included:

- Again a general statement, I don’t believe we should teach children that someone living in a “scattered development” is worse than someone living in a large compact city.
- I disagree with the above statement – the concept simply states a fact, it’s not a value judgment – kids need to understand the link between cars and scattered development.
- We are not stating that someone who lives in a scattered development is worst – but rather that it changes the transportation dynamic – socially and financially.
- RE: comment regarding teaching children that scattered development is "worse" - agreed; however, if there are verifiable facts and figures that there are added costs for public services, added costs for transportation corridors, added inconveniences for commuters, increased pollution, etc., it seems reasonable to teach children these facts and allow them to draw their own conclusions.
- It’s not a matter of who is better. If presented with relevant supporting facts, this concept can help make the subject of land use come to life – real situations.
- But I want to express agreement that care needs to be taken so that kids who live in scattered developments don’t get stigmatized as being “bad.”

For the second concept, “Clean air, clean water, and more efficient and compact development are all at least partially based on sustainable land use.” comments included:
• I wouldn’t muddy the water by using sustainability, what about planning?

• “Sustainable land use” is another empty, undefined term.

• The causality here is strained— I’d buy it if the language was Some goals of sustainable land use are clean air, etc.

• I agree – sustainability is another complex concept.

For the third concept, “The public cannot act effectively in the realm of land use unless they are well informed about the general process and proposed future actions.”

comments included:

• This is misleading. Any public, well-mobilized can be effective in land use matters, regardless of their level of well-informedness.

• NIMBY movements are full of ill-informed people, as are many pro-development organizations.

• Supports public involvement, both to be promoted by “regulators” and to be made a personal responsibility; good concept for positive citizenry K-12.

• Key word, “effective”. And true in any general process.

These comments give some insight into why the standard deviation in these three concepts grew slightly between the first and second rounds of the Delphi. It appears that these particular concepts could be considered polarizing and produce strong and opposite feelings, as illustrated by the comments.
Participants in the NGT and Delphi Techniques

The question of whether the participants that the researcher utilized in the two processes are a true representation of the opinions "across the board" has been asked. It is a difficult question to answer with any definite certainty for two main reasons.

The first reason is that the researcher did not specify if the participants were to answer the surveys as employees of their agencies. It can be speculated that some did and others chose to answer the surveys based on their personal beliefs. This makes it difficult to decide if the full spectrum of ideas were surveyed. As the survey responses came in and the comments and ratings were analyzed, it was noticed that many of the responses did not follow the "published" ideas of the agency or organization they were representing. So it would be difficult to decide if all views were surveyed and also if the varying views were equal in number.

Secondly, there was a premeditated effort to get participants from various viewpoints involved, but ultimately, they had to agree to participate (no one was turned down). Because the participants in these techniques were partially self-selected, it is not possible to state that all viewpoints were represented. There were, though, over 50 individuals involved in the development of the framework, representing many diverse points of view.

Consensus in the Delphi

The point of deciding that consensus has been reached can vary for different projects' goals. In this particular project, it was decided that a consensus was reached after the completion of the second round of the Delphi, due to the decreased standard deviations in the concepts overall (there was a decrease in 96% of the concepts).
There is also a danger of having a "false" consensus reached, due to participants dropping out of the process because they disagree strongly with the majority (Blair and Uhl, 1993). If this happens, it would appear consensus has been reached, when the reality is that only people who agree with the majority have stayed in the study. It is recommended to check this by comparison of the participants who remain in the study to those that drop out (Blair and Uhl, 1993).

In the first round there were a total of 33 participants. In the second round, there were a total of 29 participants (an 88% retention rate of participants). The first round responses for the 4 participants who did not complete the second round were examined by the researcher. All of their responses were relatively close to the group mean, and therefore, it was concluded that it was reasonable to decide that they did not drop out of the Delphi due to strongly disagreeing with the majority and instead dropped out for other reasons.

Communication in the Delphi

Linstone and Turoff describe the Delphi as "a method for structuring a group communication process so the process is effective in allowing the individuals, as a whole, to deal with a complex problem" (1975). The communication mentioned in the above definition was evident in both rounds of the Delphi. Participants in the second round responded to comments in the first round. Some examples of this include stating that they agreed with a particular comment, stating an inaccuracy of a comment of the first round, or taking a comment from the first round that they agreed with and explaining the point in
greater depth. This illustrates that there was a dialogue going on between the participants in the Delphi, which is a goal of the technique.

Sub-goal 5: Final validation of the conceptual framework for land use environmental education

The researcher initially edited the concepts based on the comments from the respondents for clarity and conciseness.

Members of the graduate committee then reviewed the edits and the resulting framework from the NGT and Delphi processes. Further revisions suggested by the committee were completed. The final changes to the framework were reviewed by members of the committee.

The finalized version of the Land Use Environmental Education Conceptual Framework can be found in appendix N.
Chapter 5

Summary, Conclusions, and Recommendations

Summary

The goal of this project was to develop a conceptual framework for land use environmental education in the social studies curriculum for grades K-12. This project used two different consensus-building techniques to identify and validate the concepts that would be included in the framework.

The Land Use Environmental Education Conceptual Framework was developed based on completing five sub-goals.

Sub-goal one was to identify and collect information on current land use environmental education topics and materials. A comprehensive and systematic search was conducted to review current LUEE topics and materials in order to determine what land use topics are featured in books, websites, and databases and what materials have been created.

Sub-goal two was to develop a set of LUEE concepts based on the research findings in sub-goal one. Data from the comprehensive search was gathered and organized to create concepts for a rough draft of the conceptual framework.

Sub-goal three was to conduct a modified Nominal Group Technique workshop of Wisconsin land use stakeholders, professionals, and educators to begin the process of identifying and validating the concepts that would be included in the framework.
Sub-goal four was to conduct a modified Delphi technique to continue with the process of identifying and validating which concepts would be included in the conceptual framework.

Sub-goal five was the final validation of the conceptual framework. Members of the graduate committee validated final revisions and the final version of the framework.

Conclusions

The goal of this project was to develop a conceptual framework for land use environmental education in the social studies curriculum for grades K-12. This goal was reached and the project was completed with the development of a conceptual framework consisting of 69 concepts organized under 4 broad themes. They are:

1) How Do We Use Land?

2) How are Decisions Made Regarding Land?

3) What are the Effects of Land Use Decisions?

4) How Do We Manage Land?

Land use issues are increasingly occurring in communities across the state of Wisconsin and this was seen as an opportunity to infuse EE into the social studies curriculum. It is crucial to begin the dialogue of what K-12 students should be learning about land use in their social studies classrooms, which was accomplished by the completion of the project.

The next phase of this project will be the development of the Land Use Education Curriculum for Social Studies, which will be based on the conceptual framework that was developed. This process will include the scope and sequence of the concepts as well as
the development of activities. These processes will utilize teachers as participants and reviewers exclusively.

The framework and the eventual curriculum both have the aim of educating the next generation in land use planning and to produce thoughtful and engaged citizens that will see the connection between land use planning and the environment and be compelled to act.

Recommendations

There are several recommendations would be helpful for conducting a similar research project (the process), for additional changes to the framework (the content), and for the future development of the land use environmental education curriculum.

Recommendations for the Process

Recommendation One: Monetary compensation for time

For future developments of conceptual frameworks that used the NGT process, it is recommended to use funds (if available) to bring in a wider audience of participants and compensate them monetarily for their time. This is particularly important for teachers who need to be able to get time off and pay for substitute teachers for their classrooms. But an important consideration of the involvement of teachers would be that they are “experts” in the chosen topic for the conceptual framework and have extensive knowledge of that particular topic. Monetary compensation could also be an incentive to get nongovernmental agencies and organizations involved and participation would not be dependent solely on the willingness of the participants. This compensation would not be
necessary for government agencies and organizations, such as the Wisconsin Department of Natural Resources, due to their funding from the State.

**Recommendation Two: Utilization of a greater number of teachers**

In a similar type of study, it is recommended to utilize a greater number of teachers and other educational professionals (especially social studies educators) in both the NGT and Delphi processes. Teachers are the experts in education and could bring that perspective into both processes. Land use professionals often have background and knowledge that is imperative in these processes, but teachers can bring in the additional knowledge of what a concept and a conceptual framework are and also which are the concepts that could actually be taught in a classroom. It is important that the teachers are also "experts" in the chosen topic, so they have a wealth of knowledge about the topic. Many efforts were made to get more educators involved in this particular project, but for various reasons, not a large number of them ultimately participated.

**Recommendation Three: Additional round of the Delphi Technique**

In a similar type of study, it is recommended to do one additional round of the Delphi Technique (bringing it to a total of 3 rounds). This could help bring the group to a higher level of consensus and also eliminate the need for some of the heavy edits that were necessary after the second round of the technique (which were done by the researcher and members of the graduate committee). To accomplish this additional round, more time needs to be budgeted in the research project to compile and summarize the results of round two and to distribute and compile the results of round three. There is also the need
to maintain the motivation of the participants in the third round, which would involve finding additional incentives for the participants to complete the final round so the response rate would remain high.

For this particular project, two rounds seemed ideal due to the potential constraints mentioned above. Additionally, the topic of land use can be a polarizing subject and it is possible that a complete consensus would never be reached, regardless of the number of rounds of the Delphi. It is recommended that a researcher in a similar study carefully weigh the costs and benefits of sending out more than two surveys.

**Recommendations for the Content**

**Recommendation Four: Allow the framework to evolve as the subject evolves**

The frameworks developed by KEEP, The World Wildlife Fund, and LEAF all stated that they were meant to evolve as the field and/or topic evolves – essentially that the frameworks are not set in stone. This would also be valuable for the land use environmental education conceptual framework, as the field will change in the coming years as the fields of biodiversity, energy, and forestry have changed. Suggested revisions, changes, and creation of concepts can come from both the general public and members of the land use and education communities. This would allow the document to stay relevant and, ultimately, to be a more “usable” product.
**Recommendation Five: Rewriting of eliminated concepts for smooth transitions**

This involves filling out the framework in regards to the concepts that were eliminated in the NGT and Delphi Techniques. Some eliminated concepts may need to be rewritten to help the framework integrate smoothly from theme to theme and subtheme to subtheme.

**Recommendation Six: Distribution of framework for review**

The framework should be distributed for review and comments to a wide range of people and organizations in both the land use and education communities throughout the State of Wisconsin. This will give people the opportunity to give their opinion and feedback on the content of the framework before the curriculum is developed. This step could potentially generate more support for the curriculum in the long run.

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**Recommendations for the Future Development of the Curriculum**

**Recommendation Seven: Concepts that produced many comments**

For the development of the curriculum based on the conceptual framework that was created in this project, it is recommended to take note of the particular concepts that produced many comments generated in the Delphi. Many of these comments provide valuable insights and illustrate the various perspectives and points of view that could be examined in an activity of the curriculum.

**Recommendation Eight: Utilize land use professionals from NGT and Delphi**

For the development of the curriculum, it is recommended to utilize a number of the land use professionals that participated in the NGT and Delphi. Several participants expressed
interest in serving as reviewers for the developed activities in the curriculum for content and accuracy. They could also serve as a resource about how things are actually done in the planning world and add that dimension to the curriculum. Additionally, many land use professionals participated in both the NGT and Delphi processes and have a sense of ownership of the project. Their participation in the development of the curriculum (a continuation of the process) could potentially translate to future support of the finished project.
Literature Cited


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APPENDIX F: List of Affiliations of Participants for the Delphi Process
APPENDIX G: Directions for First Round of the Delphi Process
APPENDIX H: Directions for Second Round of the Delphi Process
APPENDIX I: List of Resources Utilized to Develop Concepts
APPENDIX J: List of Concepts for the NGT
APPENDIX K: Directions of How to Vote for Concepts in NGT
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Appendix A

Invitation Letter to Potential Participants
Greetings!

Through a partnership between the Center for Land Use Education (CLUE) and the Wisconsin Center for Environmental Education (WCEE) at the College of Natural Resources at UW-Stevens Point, we are developing a conceptual framework for land use education. This framework is the first step necessary to eventually create a K-12 curriculum for this topic. This project will also inform CLUE’s land use education initiatives as we work with communities around the State and our university land use planning curriculum. We are focusing on social studies topics, due to the overlapping issues in geography, economics, and political science. This is especially relevant today in the State of Wisconsin, with the passage of the comprehensive planning law in 1999, which essentially mandates that all communities must have a comprehensive plan by the year 2010.

To begin the process of developing a conceptual framework, we first need to identify the concepts that K-12 students should be taught about land use in Wisconsin. What land use concepts should we be teaching our K-12 students? **You have been identified as someone who might provide input on the concepts that will be included in the conceptual framework. Your perspective is important to this process.** We are looking to provide a balanced approach to the topic of land use in Wisconsin. Understanding different viewpoints and perspectives is necessary to make sound decisions leading to sustainable land use practices.

Attached is information on how you and others you know can help by participating in a one-day focus workshop. During this day, we will be working to clarify, add, and omit concepts from the rough draft of the framework. **The focus workshop will be held on the campus of UW-Stevens Point on December 13, 2002 (in the Laird Room of the University Center).** We will begin at 9:30 am and end by 3 pm. Lunch will be provided. **Please let us know by phone, mail, or email if you are able to attend this event by November 22, 2002.** After we hear from you, you will receive a confirmation letter or email with more details.
If you are not able to attend this event, but are interested in reviewing and rating the concepts (in early January), please contact us and we will put you on our list. (The review and rating will be done through a survey by either email or mail.)

If you know someone who would be interested in participating in the focus workshop, please nominate them by submitting their name via phone, mail, or email. **The deadline for nominations is November 12, 2002.**

Please help us form a focus workshop of individuals representing many perspectives on Wisconsin land use!

If you have any questions or concerns, please contact us at (715) 346-2386 (Anna) or (715) 346-4943 (Dennis). Together we can work to help ensure sustainable land use practices in Wisconsin.

Sincerely,

Dr. Anna Haines  
Dr. Dennis Yockers  
Heidi Hoover

Please send nominations, confirm attendance to the focus workshop, or interest in participating in the future survey to:

Heidi Hoover  
College of Natural Resources  OR  email: hhoov678@uwsp.edu  
1900 Franklin St.  OR  call: (715) 346-2386  
UW-SP  
Stevens Point, WI  
54481
We need your viewpoint!

Who? All land use stakeholders in Wisconsin - Please nominate others to participate!

What? Provide input and refine concepts to be included in a Land Use Education Conceptual Framework for K-12 classrooms in Wisconsin.

How? Participate in our focus workshop, nominate others that may be interested in participating, or indicate interest in reviewing and rating concepts.

When? Nominations need to be made by November 12, 2002. Please let us know if you are able to participate in the focus workshop or have interest in reviewing and rating concepts by November 22, 2002.

Then what? This draft list of concepts will be further refined by a steering committee that represents a broad base of land use interests. A final conceptual framework will be produced to use in the future to develop a Land Use Education curriculum.

Please send in your nominations, confirmation of attendance, or interest in participating in the future survey today to the address, email address, or phone number below. Thank you for playing a key role in the development of a sustainable future for our land!

Please send nominations, confirm attendance to the focus workshop, or interest in participating in the future survey to:

Heidi Hoover
College of Natural Resources OR email: hhoov678@uwsp.edu
1900 Franklin St.
UW-SP OR call: (715) 346-2386
Stevens Point, WI
54481
Appendix B

Confirmation Letter to NGT Participants
November 25, 2002

Greetings!

This letter is to confirm that you have accepted the invitation to participate in the one-day Land Use Education Workshop on Friday, December 13, 2002 at UW-Stevens Point sponsored by the Center for Land Use Education (CLUE) and the Wisconsin Center for Environmental Education (WCEE).

The workshop will be held from 9:30 am to 3:00 pm. PLEASE plan to arrive by 9:00 - 9:15 am so you can park the car, enjoy coffee and breakfast pastries, and greet friends by 9:30.

Please see the web page http://www.uwsp.edu/tour/BuildingMap.htm for a map of UW-SP. Long-term (12 hour) metered parking is available in Lot X. Short-term (4 hour) metered parking is available in Lots R and V. Please be aware that both the University and the city regularly ticket cars if they are not in the correct parking areas or if meters run out. The workshop will be held at the University Center, in the Laird Room (look for signs once you enter the University Center).

The goal of the day is to identify the concepts that K-12 students should be taught about land use in Wisconsin. We will already have concepts developed in a "rough" form. Your job will be to break out into small groups to look over the concepts and to suggest changes, omissions, and additions as needed. You will also be rating your top picks for inclusion into the final framework. Your perspective will help us provide a balanced approach to the topic of land use in Wisconsin.

Lunch will be provided as well as morning coffee and breakfast pastries.

Also, please bring along a copy of any K-12 land use education materials that you have written/created and are willing to share. You can also send it via email to hhooy678@uwsp.edu. We are hoping to eventually build-up a library of these resources here on campus so that we can assist educators throughout the state.
Please email us at hhoov678@uwsp.edu or call at (715) 346-2386 if you have any questions or concerns.

And finally, thank you for helping to work towards ensuring sustainable land use practices in Wisconsin!

We look forward to seeing you on December 13!

Sincerely,

Dr. Anna Haines       Dr. Dennis Yockers       Heidi Hoover
Appendix C

List of Participants for NGT Meeting
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<td>Bate, Tim</td>
<td>Milwaukee Metropolitan Sewerage District</td>
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<td>Bowles, Glenn</td>
<td>Professor of Land Use, Center for Land Use Education (CLUE) – UW- Stevens Point</td>
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<td>Cahill, Christopher</td>
<td>WDNR – Forestry Planner</td>
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<td>Ciske, Thom</td>
<td>Vice President, Government Relations, Fox Cities Chamber of Commerce</td>
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<td>Deschane, Jerrv</td>
<td>Wisconsin Builders Association (Madison)</td>
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<td>Elman, Bill</td>
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<td>Frank, Nancy</td>
<td>Chair of Department of Urban Planning, Editor of WAPA News, UW-Milwaukee</td>
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<td>Godfrey, Scott</td>
<td>Director of Planning, Iowa County Planning</td>
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<td>Environmental Analyst and Review Specialist, WDNR</td>
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<td>Jenkins, Mary Kay</td>
<td>Planner/ Local Assistance Planner, SWWRPC</td>
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<td>Jordan, Ben</td>
<td>Program Director, Department of Engineering and Professional Development – UW-Madison</td>
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<td>Kemp, Sarah</td>
<td>Grant Specialist, WDOA, OLIS (Madison)</td>
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<td>Director, Waukesha City Parks and Land Use Department</td>
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<tr>
<td>McKenzie, Phyllis</td>
<td>Riveredge Nature Center (Newburg)</td>
</tr>
<tr>
<td>McMullen, Peter</td>
<td>Program and Planning Analyst, WDNR (Milwaukee)</td>
</tr>
<tr>
<td>Mesler, Joe</td>
<td>Building/Zoning Commissioner, City of Delavan</td>
</tr>
<tr>
<td>Miskowiak, Doug</td>
<td>Center for Land Use Education (CLUE) – UW-Stevens Point</td>
</tr>
<tr>
<td>Nehring, Patrick</td>
<td>CNRED agent, Waushara</td>
</tr>
<tr>
<td>Nicolini, Mark</td>
<td>Planning and Evaluation Manager, Milwaukee Metropolitan Sewerage District</td>
</tr>
<tr>
<td>Popelka, Gary</td>
<td>Planning and Zoning Director, Wood County</td>
</tr>
<tr>
<td>Pritchard, Teague</td>
<td>Forest Planner, WDNR (Madison)</td>
</tr>
<tr>
<td>Sparacio, Nic</td>
<td>Senior Planner, Foth and Van Dyke</td>
</tr>
</tbody>
</table>
Tang, Chin-Chun  
Center for Land Use Education (CLUE) – UW-Stevens Point

VanderKelen, Rebecca  
Center for Land Use Education (CLUE) – UW-Stevens Point

Vanness, Len  
Calumet County Planning Department

Walbrun, Kassandra  
Program and Planning Analyst, WDOT (Madison)

Watermolen, Dreux  
Chief Science Informational Services, WDNR (Madison)

Watts, Peter  
Science teacher, Watertown Middle School

Zeinemann, Robert  
Planner, WDOA, OLIS (Madison)

**Facilitators**

<table>
<thead>
<tr>
<th>Facilitator</th>
<th>Role and Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haines, Anna</td>
<td>Assistant Professor of Land Use, Center for Land Use Education (CLUE) – UW-Stevens Point</td>
</tr>
<tr>
<td>Hoover, Heidi</td>
<td>Graduate Student, Center for Land Use Education (CLUE) and Wisconsin Center for Environmental Education (WCEE) – UW-Stevens Point</td>
</tr>
<tr>
<td>Strathe, Sterling</td>
<td>Director of K-12 Forestry Program (LEAF), Wisconsin Center for Environmental Education (WCEE) – UW-Stevens Point</td>
</tr>
<tr>
<td>Yockers, Dennis</td>
<td>Associate Professor of Environmental Education, Wisconsin Center for Environmental Education (WCEE), UW-Stevens Point</td>
</tr>
</tbody>
</table>
Appendix D

Handouts for NGT Meeting
Agenda for Land Use Focus Workshop 12/13/02

Please note: Times are approximate and depend on the flow of the group work

9:00-9:30 = Arrival of participants

9:30-10:30 = Introduction
  • Welcome
  • Icebreaker
  • Brief introductions
  • Overview of process and instructions for the day

10:30-11:15 = Walk-about for participants

11:15-11:45 = First rotation for groups

11:45-12:15 = Second rotation for groups

12:15-1:00 = Lunch

1:00-1:30 = Third rotation for groups

1:30-2:00 = Fourth rotation for groups

2:00-2:30 = Participants select primary areas of focus (prioritizing/ dotting)

2:30-2:35 = Wrap-up

2:35-3:00 = Funding Ideas

3:00 = End Workshop
What is the goal of the day?

- The goal of the workshop is to identify the concepts that K-12 students should be taught about land use in Wisconsin. (Your perspective will help us provide a balanced approach to the topic of land use in Wisconsin.)

- Your job will be to break out into small groups to look over the concepts and to suggest changes, omissions, and additions as needed. You will also be rating your top picks for inclusion into the final framework.

What will happen next?

- The next step will involve the facilitators organizing all of the information generated in this workshop. We will go through all of the concepts and consider the suggested changes by the participants of the workshop, finishing with about 60 concepts.

- Land use and educational reviewers will then participate in a modified Delphi survey, which involves sending out the concepts and having reviewers rate each concept for inclusion into the final conceptual framework. This will be done by rating each concept on a scale of 1 to 5. There will also be space for additional comments by the reviewer. The modified Delphi will occur twice by the same reviewers. After the first review, we will make the suggested changes, and then send it out again to be reviewed (by the same reviewers of the first round) with the new changes.

- The conceptual framework will be completed by April 2003.

- Eventually, the goal of this project is to develop a Land Use Education curriculum based on the conceptual framework that would be accessible to all Wisconsin educators.

If you are interested in participating in the Delphi survey as a reviewer, please email Heidi Hoover at hhoov678@uwsp.edu or call Dr. Anna Haines at (715) 346-2386 no later than January 10, 2003.
Appendix E

Confirmation Letter to Delphi Participants
Greetings!

You are receiving this letter because you expressed an interest in participating in the modified Delphi survey for the development of the conceptual framework for land use education.

As a reminder, through a partnership between the Center for Land Use Education (CLUE) and the Wisconsin Center for Environmental Education (WCEE) at the College of Natural Resources at UW-Stevens Point, we are developing a conceptual framework for land use education. This framework is the first step necessary to eventually create a K-12 curriculum for this topic. This project will also help to inform CLUE’s land use education initiatives as we work with communities around the State and our university land use planning curriculum. We are focusing on social studies topics, due to the overlapping issues in geography, economics, political science, and environmental studies.

We have already completed the first step to help reach this goal, which was a one-day focus workshop in mid-December 2002 that worked to clarify, add, and omit concepts from the rough draft of the framework. We then had participants rate their top picks for inclusion into the framework, which enabled us to begin the process of fine-tuning it. The next step is where you come in – the modified Delphi survey.

The goal of the Delphi is to reach a group consensus about which concepts should be included in the land use education framework. The Delphi involves rating concepts for inclusion into the framework on a Likert-type scale of -2 to +2 (where -2 represents “strongly disagree that this concept should be included in the framework”, +2 represents “strongly agree that this concept should be included in the framework”, and 0 is neutral). This will be done in two separate mailings.

- In the first mailing, you will receive all of the land use concepts minus the ones that were deleted due to voting in the focus workshop. You will rate each concept using the scale and will be able to include any comments about the concept. Once you received the mailing, you will have 5
working days to rate the concepts and add additional comments. There will be approximately 114 one-sentence concepts to rate.

- Once we receive the rated concepts, we will compute and analyze descriptive statistics for each concept. Concepts will be eliminated if they are scored low for inclusion by the participants.

- The second mailing will involve rating the remaining concepts after the first mailing. It will also include the group mean rating for each of the concepts and will indicate where you voted in the first mailing. The purpose of this is to indicate to each participant where they lie in relation to the group. Participants will then be able to re-rate concepts with this knowledge of the groups’ rating. Consensus is desirable, but participants should not feel compelled to rate according to the groups’ rating. Once you receive the mailing, you will have 5 working days to rate the concepts and add additional comments.

Please note that all participants in the Delphi will remain anonymous to the other participants and no names will be linked to specific data when the final report is written. **The Delphi will be done primarily via email with attached Word documents.** Please contact us if you wish to have it sent through the mail instead.

As previously with the focus workshop, we have permission/waiver forms for each participant. This is mandated by the University Institutional Review Board. The form is included in this letter as well as a postage-paid envelope for you to return it to us. If you received this letter via email, the permission/waiver form will be sent to you shortly along with a postage-paid envelope. Please take a moment to read it over, sign it, and mail it back to us.

**We will assume that you are interested in participating in the modified Delphi survey if we do not hear from you by Friday, February 21, 2003. Please email or call us if you have any questions or concerns or are no longer able or interested in participating.**

We are looking to provide a balanced approach to the topic of land use in Wisconsin. Please help us form a Delphi survey of individuals representing many perspectives on Wisconsin land use!

If you have any questions or concerns, please contact us at (715) 346-2386 (Anna) or email hhoov678@uwsp.edu. Together we can work to help ensure sustainable land use practices in Wisconsin.

Sincerely,

Dr. Anna Haines  
Dr. Dennis Yockers  
Heidi Hoover
Appendix F

List of Affiliations of Participants for the Delphi Process
List of Affiliations of Participants for Delphi Process

- Village, City, and County Planning and Development
- Wisconsin Department of Natural Resources (WDNR)
- Private planning/consulting firms
- University of Wisconsin professors
- University of Wisconsin students
- Wisconsin Realtor’s Association
- Wisconsin Builder’s Association
- National Resources Conservation Service (NRCS)
- Nature Centers
- Regional Planning Commissions
- University of Wisconsin - Extension (UWEX)
- Global Environment Management Education Center (GEM)
- Center for Land Use Education (CLUE)
- Wisconsin Department of Transportation (WDOT)
- Wisconsin Department of Administration (WDOA)
- Utility Companies
- Wisconsin Chapter of the American Planning Association (WAPA)
Appendix G

Directions for First Round of the Delphi Process
Delphi Directions:

Please rate each statement by placing an “x” in the box corresponding to your perceived agreement with each statement. (See the example below.)

You are rating each concept in terms of inclusion into the framework. Please remember that the goal of this exercise is to decide which land use concepts should be part of K-12 education.

The following is the scale:
-2 = strongly disagree that this concept should be included in the framework (SD)
-1 = disagree that this concept should be included in the framework (D)
0 = neutral (N)
+1 = agree that this concept should be included in the framework (A)
+2 = strongly agree that this concept should be included in the framework (SA)

There is also space for comments. Please use this area for any additional thoughts or concerns you have related to this particular concept.

<table>
<thead>
<tr>
<th>Example of rating a concept</th>
<th>SD</th>
<th>N</th>
<th>+1</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) The Delphi technique is used to gain consensus of a group.</td>
<td>-2</td>
<td>0</td>
<td>+1</td>
<td>+2</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Additionally, there are 4 major headings (How do we use land?, How are decisions made regarding land?, What are the effects of land use decisions?, and How do we manage land?) and several sub-headings under each of the major headings. These are here to serve as a guide for you to understand the way that the framework is organized. There are also definitions at the end of some of the sub-headings to clarify any terms that may have many meanings.

As mentioned in the letter/email last week, participants have 5 working days to return this to us. That means that this needs to be sent to us no later than 5:00 pm on Friday, February 28, 2003. It will take approximately one week to compute the statistics, and then we plan to send out the second mailing on Monday, March 10.

Once again, thank you for helping us on this project and if you have any questions or concerns, please contact us at (715) 346-2386 (Anna) or email hhoov678@uwsp.edu. Together we can work to help ensure sustainable land use practices in Wisconsin.

Sincerely,

Dr. Anna Haines  Dr. Dennis Yockers  Heidi Hoover
Appendix H

Directions for Second Round of the Delphi Process
Delphi Directions for second mailing:

The directions for the second mailing has a few changes from the first mailing.

You will still be rating the concepts. But there is additional information included for each of the concepts:
1. The group mean (average) rating of all participants is listed in the box that corresponds to the rating.
2. Your individual rating from the first mailing is also listed.
3. Finally, there is a listing of comments from the first mailing.

<table>
<thead>
<tr>
<th>Example of listing the group mean, individual rating from first mailing, and listing of earlier comments of a concept</th>
<th>SD</th>
<th>N</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Delphi technique is used to gain consensus of a group.</td>
<td>-2</td>
<td>0</td>
</tr>
<tr>
<td>Individual rating from first mailing:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Listing of earlier comments:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This knowledge of both the group mean and your individual rating is to let you know where you lie in relation to the overall group rating. As stated previously, the goal of the Delphi is to come to a group consensus of which concepts should be included in the Land Use Education conceptual framework. Comments from the first mailing are also provided to let you know the thoughts of Delphi participants who chose to include comments. Please note that comments were omitted if they were about re-wording or modifying the concept. Also, remember that not everyone chose to include comments, so those listed may not include all points of view.

Therefore, we are asking you to once again rate the concepts (in the same manner as the first mailing) with this new knowledge. Note that although consensus is the goal of this project, please do not feel compelled to rate according to the group rating. If you did differ markedly (roughly one point or more) in the first mailing from the group mean and chose not to re-rate the concept closer to the group mean, we ask that you consider stating your reasons why you feel this way. This information will help us in the analysis of the results.

The following is a review of the rating instructions from the first mailing:
Please rate each statement by placing an “x” in the box corresponding to your perceived agreement with each statement. (See the example below.)

You are rating each concept in terms of inclusion into the framework. Please remember that the goal of this exercise is to decide which land use concepts should be part of K-12 education.
The following is the scale:
-2 = strongly disagree that this concept should be included in the framework (SD)
-1 = disagree that this concept should be included in the framework (D)
0 = neutral (N)
+1 = agree that this concept should be included in the framework (A)
+2 = strongly agree that this concept should be included in the framework (SA)

There is also space for comments. Please use this area for any additional thoughts or concerns you have related to this particular concept.

<table>
<thead>
<tr>
<th>Example of rating a concept</th>
<th>SD</th>
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<td>1</td>
<td>X</td>
</tr>
</tbody>
</table>

Comments:

Additionally, there are 4 major headings (How do we use land?, How are decisions made regarding land?, What are the effects of land use decisions?, and How do we manage land?) and several sub-headings under each of the major headings. These are here to serve as a guide for you to understand the way that the framework is organized. There are also definitions at the end of some of the sub-headings to clarify any terms that may have many meanings.

As with the first mailing, participants have 5 working days to return this to us. That means that this needs to be sent to us **no later than 5:00 pm on Friday, March 21, 2003.**

Once again, thank you for helping us on this project and if you have any questions or concerns, please contact us at (715) 346-2386 (Anna) or email hhoov678@uwsp.edu. Together we can work to help ensure sustainable land use practices in Wisconsin.

Sincerely,

Dr. Anna Haines  Dr. Dennis Yockers  Heidi Hoover
Appendix I

List of Resources Utilized to Develop Concepts
List of Resources Utilized to Develop Concepts


Appendix J

List of Concepts for the NGT
**List of concepts for Nominal Group Technique**

**Land Use (general)**

1. Land use is many things to many people.
2. Land use exists within cultural contexts.
3. Land use has a historical perspective.
4. Consensus on what constitutes “good” land use is hard to achieve.
5. Since many interests compete for limited available land, the problem in deciding how land will be used is complex and requires complex solutions.
6. Land use requires an analysis of many alternatives and many points of view.
7. Trade-offs are involved in any land use decision (positive and negative consequences).
8. Factors that influence land use—social, political, economic, physical and environmental aspects—should be considered for every land use decision.
9. Numerous individuals and institutions are involved in land use matters.
10. Land use conflicts are increasingly common in communities throughout the State of Wisconsin.
11. Decisions about the use of land can be sometimes thought of as value decisions.
12. Land use decisions have social, environmental and economic implications and can affect the condition and quality of the natural and built environment and the basic quality of people’s lives — land use affects everyone.
13. The conversion of land from open to developed status is a crucial and essentially irreversible decision – land use decisions can change the physical landscape in fundamental ways.
14. Many of the changes in our land caused by land use decisions take place so slowly and regularly that many people simply don’t notice it.
15. Land use decisions involve rights of ownership, human needs, and social controls.
16. The land use decisions in one community or even a single county can affect neighboring communities and counties - the effects of certain land use practices are not contained by local, state or national boundaries (e.g. global circulation of air).
### Land

1. Land supplies humans with most of the things they need for life — food production, housing/living space, transportation, recreation and aesthetic enjoyment, industry, for preserving natural areas and wildlife, for spiritual needs, for producing minerals and other resources, and as a natural/built environment for other living things.

2. Land is a finite natural resource that features multiple uses and exists in diverse forms.

3. The concept of “land” has changed and will keep changing and is often viewed as a commodity to be bought and sold (e.g. value, useless).

4. The Wisconsin landscape has always been changing and will keep changing in the future.

### Private Land

1. The federal government has extensive powers over the use of private land:
   - Can exercise eminent domain to take private land for “public purposes”
   - Taxation on land (real estate)
   - Police power (most common is zoning)
   - Power of public purse – how government spends funds for public purposes

2. Land ownership means different things to different cultures within Wisconsin, the USA, and the world.

3. Land ownership can be seen as a “bundle of rights”; any single right may be separated from the bundle and sold or given away.

4. The right to use or develop property is not unlimited – the landowner can’t use or develop the property in ways that would harm others.

### Urban Land Use

1. There are a number of issues involved in public policy and the urbanization of land — such as inefficient use of land, energy waste, solid wastes, adequacy of water, affordable housing, public recreational space and open/green space and environmental quality.

2. The environmental justice movement is aimed at empowering community members and decreasing exposure to hazards in the environment - it is having a powerful impact on the way many cities and towns look at land use issues.

3. As human populations increase and become significantly urban, land usage is altered dramatically.
**Zoning**

1. Zoning is the division of local government areas into districts, which are subject to different regulations regarding the use of land, height, and bulk of buildings.

2. Zoning is a major tool of planning and remains the most widely used technique for controlling land use and development.

3. Zoning is an exercise of police power.

**Landowner (Federal Government)**

1. The Federal government is the largest landowner in the USA.

2. The origins of Federal lands are from land acquisition by purchase, treaty, and war.

3. Several policies in relation to Federal lands have been subject to debate and controversy (for example - land sales, mining and reclamation, national parks, national forests, Indian reservations).

**5th amendment**

1. The 5th amendment states “… Nor shall private property be taken for public use without just compensation…”

2. The 5th amendment establishes 4 distinct concepts for US law and policy: that private property exists, that it may be taken from private owners, that there shall be a class of uses known as public uses, and that owners shall be reimbursed for any taking by means of just compensation.

3. The “Taking” issue can be controversial, due to the fact that it is not well defined - when does the exercise of police power over land use constitute a “taking” – how much and for what purposes can the government take some of the value of privately owned property?

**14th amendment**

1. The 14th amendment states “…No person… shall be deprived of life, liberty, or property without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.”

2. The due process and equal protection concepts are designed to achieve fairness in how governments treat all citizens and a technical correctness in following procedures.
### 10th amendment

1. The 10th amendment allows the use of government “police power” to protect the public health, safety, welfare, and morals (zoning, subdivisions, nuisance ordinances).

### Federal Acts (Laws)

1. **NEPA (1969)**
   - Proposed to create a balance between population and resource use
   - Involves a comprehensive study of the social, economic, and environmental impacts of proposed significant federal actions
   - Requires an Environmental Impact Statement (EIS), which is a detailed statement disclosing potential environmental consequences of the proposed actions
   - This has had considerable influence on the way that federal agencies and federally funded/approved projects deal with land.

### Federal Government (courts)

1. Government agencies or courts may become involved in LU decisions.

2. **Euclid vs. Ambler (1926)** is a landmark court case that determined that states have the constitutional power to regulate land use and to delegate this power to their political subdivisions and municipalities (established zoning and a constitutional base for zoning).

### Local Government

1. Municipalities are the local government for most of the urban areas of the USA and are authorized by state laws to plan and regulate the use of private land within the jurisdiction in many ways, including the preparation of comprehensive plans, the adoption and amendment of zoning laws, the enforcement of public land-use regulations, the review of proposed plans for land subdivision, the regulation of sensitive natural areas, and the acquisition and management of public open space.

2. A challenge for local government is how to accommodate economic and population growth without sacrificing manageable local finances and a sense of place.

### History

1. People have been dependent on the land since the first humans lived on earth.

2. Humans have altered the land throughout history.

3. In the colonial period of US history land was plentiful and there was a great drive to obtain land, clear it, and grow crops.

4. Land has provided food, timber, wildlife, minerals, and other natural resources that
have helped build the USA.

5. Land, in many times and places, has meant social position and political power as well as economic advantage.

6. Lack of personal rights in land use tended to correlate with lack of control over one’s personal life — land was a symbol of freedom and a measure of wealth.

7. In Wisconsin, the first changes in the landscape occurred due to glaciers and rushing water.

8. The Native Americans in Wisconsin then utilized fire to maintain the prairies and hunted, gathered, and farmed.

9. When the European settlers arrived, Wisconsin’s landscape began to change rapidly — due to lead mining (in southwestern Wisconsin), logging, intensive farming (both wheat and dairy), and cities multiplied and grew.

### Wisconsin Land Use Decisions

1. Each state in the USA has its own set of laws that shape land use.

2. The Wisconsin state government has no direct control over land use decisions, but does have policies that impact land use (e.g. the comprehensive planning law).

3. Most land use decisions in Wisconsin are made through zoning.

4. Wisconsin’s counties, towns, cities and villages all play a part in making land use decisions.

5. The “Smart Growth for Wisconsin” law was passed in 1999, (Wisconsin Act 9), to insure responsible planning, to create a framework such that planning is implemented, to hold back sprawl, and to enhance the health of rural and urban communities.

6. The law was produced and passed in response to three major land use problems found in Wisconsin: less than one third of all Wisconsin communities had any kind of land use plan as of 1998, if there was a plan, it varied widely in content, quality, and age, and finally, many communities that had a plan ignored the plan when making land use planning decisions.

7. The law also provides specific minimum standards that all local planning efforts must follow in terms of public participation in the planning process.
**Land use and the environment**

1. The way in which land is used directly affects the environment.

2. The way in which our physical environment is planned (or not planned) greatly influences the quality of the environment and our lives.

3. Some of America’s unsolved environmental problems relate to the way land is used (e.g., water pollution – nonpoint source runoff from parking lots, city streets, roofs, farmland, lawns is the main cause, many people now bear responsibility, before the major cause was industry).

4. Clean air, clean water, and livable communities are all at least partially based on good land use.

**Population**

1. The growing number of people on the earth increases land use through the need for food and shelter, yet the amount of land remains the same. Therefore, land currently used for other purposes will be needed for housing and farmland in the future.

**Farmland**

1. Land supports plant life, which is essential for human life.

2. Cropland is the most sensitive and valuable of the USA’s rural land resources.

3. Some of the agricultural problems related to land use include the loss of land, reduced soil productivity, pollution, and water shortages.

4. In Wisconsin, land is being converted from agriculture to other uses.

**Sprawl**

1. Suburban sprawl has been the dominant form of growth in the USA for the past 50 years.

2. Today, in greater numbers, Americans live, work, and engage in recreational activities in suburban settings.

3. Some of the reasons for urban sprawl are steadily rising incomes, physical mobility, and the leisure of middle-class Americans.

4. Sprawl involves communities spreading out and consuming more land, while the population does not increase comparatively.
5. Some of the consequences of sprawl include the conversion of farmlands, the parceling of timberlands, increasing infrastructure and transportation costs, loss of wildlife habitat, and increased pollution from more vehicles traveling more miles.

6. Sound and light pollution are of increasing concern in many urban areas. This includes light pollution to such a magnitude that no stars can be seen at night and sustained sound pollution that that could produce hearing loss.

**Sense of Place**

1. A “sense of place” involves an emotional connection with the natural world and the built environment.

2. The visual environment is what is seen when one enters a community – what it looks like. This can affect how the citizens can feel about their own community.

3. There is a growing concern in many communities that they are becoming homogenized and look the same, thereby, having nothing that makes the community “unique”. Community character is what makes a community unique.

4. “Big Box retailers” can have both economic advantages and economic disadvantages for the immediate and surrounding areas where the store is established. The decision of whether the retailer is approved for establishing a store in an area by the local government can be a controversial issue.

5. Many downtown areas in communities are suffering from a decreased number of stores and shoppers, partially due to the rise in the number of malls and “big box” retailers.

**Recreational Areas**

1. Outdoor recreation is a rising use of land and water in Wisconsin and the USA today.

2. A steady and rapid rise in the number of visitors to many outdoor recreational areas have raised serious problems for the maintenance of the quality of the area.

**Open space**

1. Open space can perform many valuable functions - such as biologically active wetlands, aquifer recharge areas, coastal dunes, forests that reduce floods and prevent erosion, and productive agricultural lands.

2. Open space is needed for recreation and for visual relief.

3. Natural areas are being converted to agricultural, recreational, residential, and commercial purposes.
**Habitat**

1. Habitat fragmentation of biological communities, caused by human activities, affects wildlife diversity and populations.

2. Wisconsin has lost most of its original habitats - prairies, oak savannahs and wetlands - since European settlement.

**Historic preservation**

1. Historic preservation safeguards physical links to the past.

2. There is an increasing amount of historically significant buildings and landscapes being lost to development.

**Economic Development**

1. Economic development is a chief concern among communities, which involves creating more business opportunities, local tax base improvements, providing neighborhood services and amenities, and creates economically competitive communities.

2. Economic development encourages communities to build a strong local economic support base.

**Housing**

1. Housing is often an issue in land use - it includes the issues of housing options, housing affordability, and housing availability.

**Transportation**

1. No country in the world rivals America’s dependence on automobiles and highways; thus transportation policy plays a pivotal role in shaping land use.

2. Suburban sprawl and inefficient land use planning are now issues specifically tied to transportation planning.

3. Scattered development patterns can lead to increased dependence on automobiles.

4. Increased car use can cause increased air and water pollution (air pollution from emissions from cars and water pollution from runoff from driveways, parking lots and roads).

5. Individual transportation systems that allow increased accessibility spearhead development and drive land-use changes.
6. The present pattern of land use shapes present demand for transportation and transportation investment decisions shape the future pattern of land use.

7. Transportation is vital for the economy – it moves industrial, agricultural, mining and forestry products.

**Water (and groundwater)**

1. More than half of the water pollution problems in the USA are now the consequence of runoff, which is from city streets, roofs, farmland, forestry, and construction sites.

2. Polluted surface runoff from developed land contributes to the contamination of streams and lakes.

3. There is growing concern about both the quality and the quantity of Wisconsin’s groundwater presently and in the future.

**Shoreline development (Wisconsin related issue)**

1. The point where land meets water is an important and fragile area.

2. Land along the shores of Wisconsin provides habitats for many different species of organisms.

3. As development occurs on the shores of Wisconsin’s lakes and rivers, the fish, wildlife, water quality, and scenery begin to change.

4. Wetlands perform many valuable functions that are beneficial to both humans and wildlife. The amount of wetlands in Wisconsin has decreased dramatically since the Europeans arrived. Many times, they are converted to agricultural, commercial, industrial, and residential uses.

**Growth Management**

1. Growth management is a land use planning strategy.

2. The purpose of growth management is to provide greater certainty and predictability about where, when, and how much development will occur in a community, region, or entire state.

3. Growth management is a commitment to plan carefully for the growth that comes to an area so as to achieve a responsible balance between the protection of natural systems (land, air, water) and the development required to support growth in the residential, commercial, and retail areas.
4. Growth management can involve timing and sequential controls for growth and ranges from restrictive subdivision and zoning regulations, “permits”, and “caps”, to phased development and urban growth boundaries.

### Managing/conserving land use in the future

1. Land management in the future will be a chief concern, due to the increasing population and finite amount of land on the earth.

2. Land trusts are created for the conservation of land. They include purchasing land, placing easements on land, and managing tracts of land locally.

### Future

1. It is predicted that the future will bring more people, increased affluence, and increased urbanization.

2. Because the majority of the food, fiber, and space that supports humans come from the land, land is central in considering the quality of the human future.

### Citizens

1. Traditionally in the past, many citizens lacked confidence in official land use plans and distrusted the way zoning decisions were made.

2. Citizens elect individuals to represent them in the government who make the laws and decide which policies will be followed.

3. Citizens cannot act effectively in the realm of land use unless they are well informed about the general process and proposed future actions.

4. Citizens need to understand the relationship between natural resources and economic development, land use, community facilities, and transportation.

5. Public involvement is essential for successful planning – a plan will generally get broad support if all parties are involved.

6. Community members will feel more ownership of a plan if they play a role in its development.

7. Visioning is a participatory tool utilized in many communities, which is a process by which a community envisions the future it wants and plans how to achieve it. Visioning generally asks the three questions – what do people want to preserve in the community, what do people want to create in their community, and what do people want to change in their community?
**Land Use Planning**

1. Land use planning is needed for several reasons, including:
   - There are physical limits to growth
   - US population continues to grow (and requires new houses)
   - The need to maintain and restore the environment
   - It deals with social equity — access to jobs, affordable homes, good schools, fire and police protection
   - There is a problem of central city-out migration and infrastructure deterioration
   - There is large growth in metropolitan and rural areas.

2. Long-term planning is central to achieving better land use and growth management.

3. Planning can help prevent haphazard conservation, such as saving a small wetland without paying attention to its setting.

4. Community, county, and regional land use planning can be essential for effective growth management.

5. Planning involves the careful study and analysis of current land use needs and the anticipation of future needs based on population projections — planning helps create more predictable, efficient, and sustainable land use.

**The Comprehensive Plan**

1. A comprehensive plan is a representation of what a community wants to be in the future — it is an orderly, open approach to determining local needs, setting goals and priorities, and developing a guide for action. It includes widespread geographical coverage of the community, all subject matter related to the physical development of the community, and must consider at least 20 years into the future.

2. A comprehensive plan provides a context for important future decisions for a community.

**Sustainability**

1. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

2. Physical, economic and social patterns of human development can affect sustainability at both a local and global level.

3. Land use planning can play a role in improving the sustainability of communities, due to planning being related to how, where, and when human development occurs.
Environmental planning and development

1. Environmental planning covers a wide range of concerns dealing with minimizing the damage that human activity does to the natural environment.

2. Clustered development (also known as conservation or open space development) is a type of environmental-friendly planning and is development in which a number of housing units are placed in closer proximity than usual, with the purpose of retaining an open space area. It also preserves natural drainage systems and environmentally sensitive areas.

3. Mixed-use development is another type of environmental-friendly planning and is an approach to land use planning and urban design that promotes the building of neighborhoods with a mix of uses and housing types, a central public gathering place, interconnecting streets and alleys, and edges defined by urban growth boundaries. The basic goal is integration of the activities of potential residents with work, shopping, recreation, and transit all within walking distance.

4. Infill development encourages new growth in areas that are already developed, rather than developing new land.

5. Watershed planning is planning in a way to protect and conserve the surrounding watershed, including protecting water quality, reducing water use, and preventing wetland destruction.

6. There is a growing recognition that developments should be directed to areas with access to infrastructure and municipal services, areas with sufficient water and other resources to support growth, and areas less likely to be affected by natural disasters – this saves open space, flood plains, steep slopes, and other environmentally sensitive areas.
Appendix K

Directions of How to Vote for Concepts in NGT
Greetings!
This is the second part to the Land Use Focus Workshop you participated in on December 13, 2002 at UW-Stevens Point. We made great progress that day and received useful comments about the framework from all of the participants. We appreciated you taking the time to participate in December and hope that you will do so now in January to complete the process.

We compiled and organized your comments after the workshop. We then reviewed the concepts, eliminating any that were facts or value-laden (including our own). We now have the revised version of the framework for you to “vote” on.

See below for directions on how to “vote” for the concepts you think are the most important for K-12 education.

We ask that you send us your choices no later than 7 days from now (January 28, 2003). After that date, we will no longer be able to include your input into the process.

Please complete the process we began on December 13 and let your unique perspective be heard on Wisconsin land use.

Thank you for helping to work towards ensuring sustainable land use practices in Wisconsin!

Dr. Anna Haines
Dr. Dennis Yockers
Heidi Hoover

Steps for “voting” exercise:
1. You will get to emphasize a total of 42 different concepts. (This number was calculated using X/3, where X = number of concepts per section.)

There is a limited number of “votes” for each of the four sections:
Section 1 – How do we use land? – 21 votes
Section 2 – How are decisions made regarding land? – 5 votes
Section 3 - **What are the effects of land use decisions?** – 5 votes
Section 4 - **How do we manage land?** – 11 votes

Therefore, you are voting on each section with a limited number of votes permitted in each of the four sections. You can “vote” for a concept only once (you are not permitted to vote for a single concept multiple times).

2. We suggest that you first print the concepts, make your selections, and then “vote” in any of the 3 ways described below. Please save your notes for a few days, just to make sure we received your choices successfully. We will reply to let you know that we received the entire document.

3. Indicate your selections by putting a number by each concept you wish to “vote” on in each section. This is in no way a ranking of your choices; it is simply an easy way to help you keep track of how many concepts you have “voted” on.

4. There are 3 ways you are able to send us your top 42 choices:
   a. To electronically “vote”, hit “Reply to email”. Then follow step #3.
   b. Alternately, open the attached Word document, indicate the concepts as stated in step #3, save the modified document, and then forward back the document electronically (to hhoov678@uwsp.edu) with your choices indicated.
   c. Or open the attached Word document, print the concepts, “vote” for your top 42 concepts, and send them to us (note – this must be postmarked by January 28, 2003 to be part included as part of the process):

   Heidi Hoover
   College of Natural Resources
   1900 Franklin St.
   UW-SP
   Stevens Point, WI
   54481

**Notes:**
- We will count the only the allotted number of concepts you indicate for each section. Anymore indicated will not be counted.
- Each separate concept is indicated by a *. The numbered “concepts” in blue are definitions to clarify any meanings of terms. PLEASE DO NOT vote on the definitions.
- We are not soliciting comments in this exercise. This is to help eliminate concepts and to help form a consensus on those that you feel are the most important. However, we will be accepting comments on the modified Delphi survey that we will be doing in the next month. If you are interested in participating in the Delphi survey and have not notified us, please let us know by January 28, 2003.
- If you have problems with the format in which this document was sent, please email us and we will send it in an alternate form.
- Comments or questions? Email: hhoov678@uwsp.edu or call: (715) 346-2386
Appendix L

First Round Statistics for the Delphi Process
Appendix L = Responses to first round of the Delphi Survey

In the first round of the Delphi N=33 for all concepts, unless otherwise noted. The lower quartile of the range of the means is 0.3030 to 0.617875 (therefore, all concepts within this range were eliminated.)

Key:
SD = Strongly disagree that this should be included in the conceptual framework (-2 on Likert scale)
D = Disagree that this should be included in the conceptual framework (-1 on Likert scale)
N = Neutral (0 on Likert scale)
A = Agree that this should be included in the conceptual framework (1 on Likert scale)
SA = Strongly agree that this should be included in the conceptual framework (2 on Likert scale)

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<thead>
<tr>
<th>Number</th>
<th>Concept (and comments)</th>
<th>Mean</th>
<th>Median</th>
<th>Standard deviation</th>
<th>% SD -2</th>
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<th>% N 0</th>
<th>% A 1</th>
<th>% SA 2</th>
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<tbody>
<tr>
<td>1)</td>
<td>Land use is many things to many people.</td>
<td>0.6970</td>
<td>1.000</td>
<td>1.53062</td>
<td>18.2</td>
<td>3.0</td>
<td>15.2</td>
<td>18.2</td>
<td>45.5</td>
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<td></td>
<td>• Vague</td>
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<td>2)</td>
<td>Land use exists within cultural, economic, physical, environmental, and social contexts.</td>
<td>1.4242</td>
<td>2.000</td>
<td>0.93643</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>30.3</td>
<td>60.6</td>
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<td></td>
<td>• Fundamental</td>
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<td>3)</td>
<td>Land use has a historical perspective.</td>
<td>0.8788</td>
<td>1.0000</td>
<td>1.05349</td>
<td>6.1</td>
<td>3.0</td>
<td>15.2</td>
<td>48.5</td>
<td>27.3</td>
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<td></td>
<td>• Many people do not recognize this since many live for today not thinking about the past or present.</td>
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<td></td>
<td>• Does this mean land has been used in different ways through time? The above statement is fairly vague; it is hard to figuring out what the concept is.</td>
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<td>%A 1</td>
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<td>4)</td>
<td>Consensus on what constitutes “good,” “desirable,” and/or “sustainable” land use is hard to achieve.</td>
<td>0.6061</td>
<td>1.0000</td>
<td>1.11634</td>
<td>0.0</td>
<td>24.2</td>
<td>15.2</td>
<td>36.4</td>
<td>24.2</td>
</tr>
</tbody>
</table>

- I don’t necessarily agree that consensus is hard to achieve if the land use planning process is done effectively with quality public input opportunities.
- This statement would need to be clarified for me. I think the purpose of consensus building is to come to a general agreement of those involved to what they believe is good, desirable, etc. Consensus does not mean that every single person agrees, but that a majority has come to a general agreement. It is essential and difficult to the planning process, but not unachievable.
- Negative connotation.
- Certainly not always depending on the issue.
- Many people know what good land use practices are and how to apply. We do know better and it is inexcusable that we do not perform better.
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<th>Standard Deviation</th>
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<th>% D -1</th>
<th>% N 0</th>
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</table>
| 5)     | Since many interests compete for limited available land, the challenge in deciding how land will be used is complex. (N=31)  
• Important, but not fundamental.                                                                                                                                                                                                                                                      | 1.1290 | 1.0000 | 0.95715            | 0.0     | 6.5    | 19.4   | 29.0  | 45.2   |
| 6)     | Land use planning and decisions require an analysis of many alternatives and many points of view.  
• Good land use planning does.  
• Sometimes the choice is pretty obvious.                                                                                                                                                                                                                                                | 1.3333 | 2.0000 | 0.81650            | 0.0     | 3.0    | 12.1   | 33.3  | 51.5   |
| 7)     | Trade-offs are involved in any land use decision (both positive and negative consequences).  
• Good land use practice can be lower cost over the long term. I have heard where soil is spent on agricultural land so we might as well build on it now. The reason it is spent is sustainable practices such as manure and biomass applications were not made for decades.                                                                                                                        | 1.0606 | 1.0000 | 1.08799            | 3.0     | 6.1    | 18.2   | 27.3  | 45.5   |
| 8)     | There are many factors that influence land use, which should be considered when making a land use decision.                                                                                                                                                                                                                                           | 1.0000 | 1.0000 | 1.27475            | 9.1     | 3.0    | 15.2   | 24.2  | 48.5   |
- Supporting material would address various contexts-cultural, economic, physical, social, environmental.
- Too broad. Many factors should be considered when making a decision.

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<th>Standard deviation</th>
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<th>%D-1</th>
<th>%N0</th>
<th>%A1</th>
<th>%SA2</th>
</tr>
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<tbody>
<tr>
<td>9)</td>
<td>Decisions about the use of land are value-laden decisions.</td>
<td>0.6667</td>
<td>1.0000</td>
<td>0.98953</td>
<td>0.0</td>
<td>15.2</td>
<td>24.2</td>
<td>39.4</td>
<td>21.2</td>
</tr>
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</table>
  - One of the factors.  
  - They can be value laden but they should be based on public policy with connections to physical and social science.  
  - This might be confusing to a student, if local officials are to use a plan to make objective decisions regarding someone's land. |
| 10)    | Land use decisions affect everyone.                            | 1.1818| 1.0000 | 0.88227            | 3.0    | 0.0  | 12.1| 45.5| 39.4 |
  - Fundamental.  
  - The land, air, water, sun energy, earth energy, and organisms are all interrelated. |
| 11)    | Land use decisions can change the physical landscape in fundamental ways. | 1.2424| 2.0000 | 1.09059            | 3.0    | 6.1  | 12.1| 21.2| 57.6 |
certain land use decisions can change the physical landscape. However, I don’t know what is meant by “fundamental ways.” An example would be helpful of what is meant by this phrase. Is agriculture a base land use? Or is pastured land a base land use? The land was once converted into agriculture from something else (forested, prairie, etc.) So is that the base?

- The landscape also determines some land uses.
- Filling wetlands, and scraping off topsoil drastically alters landscape that took thousands of years to set up.

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<tbody>
<tr>
<td>12)</td>
<td>Many of the changes in our land caused by land use decisions are cumulative and take place so slowly and regularly that many people simply don’t notice it.</td>
<td>0.6061</td>
<td>1.0000</td>
<td>1.45644</td>
<td>15.2</td>
<td>9.1</td>
<td>12.1</td>
<td>27.3</td>
<td>36.4</td>
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concrete, asphalt, rooftops, and compacting soils have instant impacts.

- Fundamental.

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<th>%D -1</th>
<th>%N 0</th>
<th>%A 1</th>
<th>%SA 2</th>
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<tr>
<td>13)</td>
<td>Conversely, many of the changes in our land are caused by land use decisions that occur so quickly and/or without much public notice that people feel helpless to address, augment, or counteract those changes. <strong>Fundamental.</strong></td>
<td>0.4242</td>
<td>1.0000</td>
<td>1.22552</td>
<td>12.1</td>
<td>9.1</td>
<td>18.2</td>
<td>45.5</td>
<td>15.2</td>
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<td>14)</td>
<td>Land use decisions involve rights of ownership, human needs, and social controls.</td>
<td>0.8182</td>
<td>1.0000</td>
<td>1.15798</td>
<td>6.1</td>
<td>6.1</td>
<td>21.2</td>
<td>33.3</td>
<td>33.3</td>
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<td></td>
<td><strong>Our country was founded on private property rights of the individual and there is plenty more where that came from.</strong> Well the plenty is running out and has run out in parts of the country and planet. <strong>Very complex concept.</strong></td>
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<tr>
<td>15)</td>
<td>Land use decisions involve balancing public and private rights. <strong>Fundamental.</strong></td>
<td>1.3333</td>
<td>2.0000</td>
<td>0.95743</td>
<td>0.0</td>
<td>9.1</td>
<td>6.1</td>
<td>27.3</td>
<td>57.6</td>
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<td><strong>This is a pendulum that swings with administrative authority and their</strong></td>
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values. The current federal administration is more supportive of individual property rights than long term public good.

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<th>%N</th>
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</table>
| 16)    | The land use decisions in one community or even a single county can affect neighboring communities and counties - the effects of certain land use practices are not contained by geographical or political boundaries.  
- In certain instances, such as preserving wetlands and floodways.  
- Ask Mexico about the Colorado River that we leave running into their country. China's land use and toxic stew of dust is now reaching the coast of California.  
- True, but concerned about complexity of concept (goes beyond K-12). | 1.3939 | 2.0000 | 0.93339 | 3.0   | 3.0 | 3.0 | 33.3 | 57.6 |
| 17)    | There are a number of issues involved in public policy and the use of land.  
- Inconsistency of rules across municipalities and states.  
- Vague.       | 0.5758 | 1.0000 | 1.19975 | 6.1   | 15.2 | 18.2 | 36.4 | 24.2 |
| 18)    | Demographic, economic, and                                                            | 0.9394 | 1.0000 | 1.05887 | 6.1   | 3.0 | 12.1 | 48.5 | 30.3 |
### Concept Mean Median Standard %SD %D %N %A %SA

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<tr>
<th>Number</th>
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<th>%SA</th>
<th>%2</th>
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<tbody>
<tr>
<td>19)</td>
<td>Demographic, social, and economic trends (e.g. the number of people per household)</td>
<td>0.7879</td>
<td>1.0000</td>
<td>1.11124</td>
<td>6.1</td>
<td>6.1</td>
<td>18.2</td>
<td>42.4</td>
<td>27.3</td>
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<td>affect the amount of land used and how it is used.</td>
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<td>• ‘World view’, ‘paradigm’, or ‘cultural norm’ also affects the amount of land used and how it is used.</td>
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<td>• “Amount of land used?” What is unused land? Are unused urban, farmland, and natural areas the same?</td>
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<td>20)</td>
<td>Land supplies humans with most of the things they need for life.</td>
<td>0.9697</td>
<td>1.0000</td>
<td>0.95147</td>
<td>0.0</td>
<td>9.1</td>
<td>18.2</td>
<td>39.4</td>
<td>33.3</td>
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<tr>
<td></td>
<td>• Most of the PHYSICAL needs in life.</td>
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<td>• If we have access to water and energy.</td>
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<td>21)</td>
<td>Land is a finite natural resource that features multiple uses and exists in diverse forms.</td>
<td>1.1212</td>
<td>1.0000</td>
<td>0.92728</td>
<td>0.0</td>
<td>6.1</td>
<td>18.2</td>
<td>33.3</td>
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<td>• Two thoughts here: finite and diverse. I think the finite concept is important to include.</td>
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| 22)    | The concept of "land" has changed and will keep changing and is often viewed as a commodity to be bought and sold (e.g., value, useless).  
\[ \text{This is a European concept as well as legal. Native Americans probably did not view land as a commodity.} \]                  | 0.6061| 1.0000 | 1.19738            | 6.1     | 12.1  | 24.2 | 30.3 | 27.3  |
| 23)    | The Wisconsin landscape has always been changing and will keep changing in the future.  
\[ \text{Too general.} \]  
\[ \text{Good to include Wisconsin example.} \]                                                                 | 0.6061| 1.0000 | 1.19738            | 6.1     | 15.2  | 15.2 | 39.4 | 24.2  |
| 24)    | People's decisions affect the way the landscape changes over time.  
\[ \text{People...and natural forces.} \]  
\[ \text{Not conversely, nature can certainly alter landscapes very quickly (i.e.: tornadoes, hurricanes, earthquakes, floods, etc.).} \]     | 0.9394| 1.0000 | 1.11634            | 3.0     | 12.1  | 9.1  | 39.4 | 36.4  |
| 25)    | Land ownership means different things to different cultures within Wisconsin, the USA, and the world.  
\[ \text{Key term is ownership and the definition of land ownership.} \]                                                                                             | 0.8485| 1.0000 | 0.97215            | 6.1     | 0.0   | 18.2 | 54.5 | 21.2  |
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<tr>
<th>Number</th>
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<tbody>
<tr>
<td>26)</td>
<td>Land is owned by public, private, and tribal ownership.</td>
<td>0.7273</td>
<td>1.0000</td>
<td>1.15306</td>
<td>6.1</td>
<td>6.1</td>
<td>27.3</td>
<td>30.3</td>
<td>30.3</td>
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<td></td>
<td>• Definition of ownership needs debate.</td>
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<td></td>
<td>• We never really own the land. We live on it and make choices on how to use or abuse it.</td>
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<tr>
<td>27)</td>
<td>The local government is granted their powers from the state. (N=32)</td>
<td>0.4375</td>
<td>0.0000</td>
<td>1.10534</td>
<td>6.3</td>
<td>9.4</td>
<td>37.5</td>
<td>28.1</td>
<td>18.8</td>
</tr>
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<td></td>
<td>• Only important in context that reflects land use decision-making. Stress police powers derive from Latin, “polis,” meaning city.</td>
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<tr>
<td>28)</td>
<td>The government has extensive powers over the use of private land: can exercise eminent domain to take private land for “public purposes”, taxation on land (real estate), police power (most common is zoning), and power of public purse – how government spends funds for public purposes.</td>
<td>1.3939</td>
<td>2.0000</td>
<td>0.74747</td>
<td>0.0</td>
<td>3.0</td>
<td>6.1</td>
<td>39.4</td>
<td>51.5</td>
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<tr>
<td></td>
<td>• ...and power of the public purse</td>
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<td></td>
<td>• Make sure these concepts are well-defined – Try to present this concept in a way that doesn’t make govt. regulation in general sound like “Big</td>
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Brother” taking over.
- There is a constant tension as these powers are exercised.

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</table>
| 29)    | Land ownership can be seen as a “bundle of rights”; any single right may be separated from the bundle and sold or given away.  
- *This is a VERY complex concept that may be very difficult for K-12-aged kids to understand.*  
- With limitations.  
- *This bundle is a function of societal needs (ala Ben Franklin) and changing times – not an immutable concept.* | 1.0606 | 2.0000 | 1.22320            | 6.1      | 6.1   | 15.2 | 21.2 | 51.5  |
| 30)    | The State government can limit property rights to protect the safety of the public or its health, morals, or welfare.  
- *Fundamental.*  
- *This has seen many court challenges.* | 1.3939 | 2.0000 | 0.86384            | 0.0      | 6.1   | 6.1  | 30.3 | 57.6  |
| 31)    | The right to use or develop property is not unlimited – a landowner cannot use or develop property in ways that would harm others.  
- …to a reasonable extent. | 1.4848 | 2.0000 | 0.90558            | 3.0      | 3.0   | 0.0  | 30.3 | 63.6  |
• ...DIRECTLY harm others. One could argue that development in suburbs harms others through increased air pollution due to increased travel, etc.

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<th>% SD 1</th>
<th>% SD 2</th>
</tr>
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<tbody>
<tr>
<td>32)</td>
<td>The origins of Federal lands are from land acquisition by purchase, treaty, war, and eminent domain. (N=32)</td>
<td>0.3750</td>
<td>0.0000</td>
<td>1.15703</td>
<td>6.3</td>
<td>12.5</td>
<td>40.6</td>
<td>18.8</td>
<td>21.9</td>
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<tr>
<td></td>
<td>• And theft.</td>
<td></td>
<td></td>
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<tr>
<td>33)</td>
<td>Land ownership, in many times and places, has meant social position and political power as well as economic advantage.</td>
<td>0.6061</td>
<td>1.0000</td>
<td>0.96629</td>
<td>3.0</td>
<td>9.1</td>
<td>27.3</td>
<td>45.5</td>
<td>15.2</td>
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<td></td>
<td>• And sense of security.</td>
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<td></td>
<td>• One could actually say in ALL times and places!</td>
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<tr>
<td>34)</td>
<td>Lack of personal rights in land use has tended to correlate with lack of control over one's personal life – land ownership was, and is still sometimes, seen as a symbol of freedom and a measure of wealth.</td>
<td>0.3030</td>
<td>0.0000</td>
<td>1.15897</td>
<td>6.1</td>
<td>21.2</td>
<td>24.2</td>
<td>33.3</td>
<td>15.2</td>
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<td>• “Sometimes” is the key word here.</td>
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<td></td>
<td>• In the USA, property ownership is the number one way to accumulate wealth.</td>
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<td>35)</td>
<td>Land resources have played a key role in the success of the USA.</td>
<td>0.9697</td>
<td>1.0000</td>
<td>0.98377</td>
<td>0.0</td>
<td>9.1</td>
<td>21.2</td>
<td>33.3</td>
<td>36.4</td>
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<td></td>
<td>• I would not use the word success. Replace with evolution – success implies no further needs to be done.</td>
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<td></td>
<td>• Timing in history allowed exploitation of fur (animals), trees, mineral, and oil wealth in the 1700-1800s and beyond.</td>
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<td></td>
<td>• Do NOT use “success” as it is subjective and ethnocentric. It is imperative to add concept of domestic and foreign extraction to this lesson.</td>
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<tr>
<td>36)</td>
<td>People have been dependent on the land since the first humans lived on earth and humans have altered the land throughout history.</td>
<td>1.1818</td>
<td>1.0000</td>
<td>0.80834</td>
<td>0.0</td>
<td>3.0</td>
<td>15.2</td>
<td>42.4</td>
<td>39.4</td>
</tr>
<tr>
<td></td>
<td>• Reminds me of Graaskamp’s often-used image of the cave man rolling a rock in front of his cave to modify his environment. Also Wisconsin’s contribution and legacy to land use economics and planning theory by Radcliff, Hoyt, Andrews, Graaskamp, etc. deserves mention.</td>
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<td>• And dependent on water, nature,</td>
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</table>
• Fire has been used as a tool for clearing for thousands of years.
• Land in US is still considered abundant comparatively to more developed countries.
• Potentially abundant but in reality not abundant to all - abundant to the powerful.
• Be careful with saying that land was "abundant" – what about Native Americans?
• Land was abundant but it came at the expense of near extermination of the native population, many who died from disease before ever encountering a "white man".
• Land is no less "abundant" now then it was 300 years ago.

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<th>%SA 2</th>
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</thead>
<tbody>
<tr>
<td>37)</td>
<td>In the colonial period of US history land was abundant and there was a great drive to obtain land, clear it, and grow crops.</td>
<td>0.5152</td>
<td>1.0000</td>
<td>1.20211</td>
<td>6.1</td>
<td>15.2</td>
<td>24.2</td>
<td>30.2</td>
<td>24.2</td>
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<tr>
<td></td>
<td>• Land in US is still considered abundant comparatively to more developed countries.</td>
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<td></td>
<td>• Potentially abundant but in reality not abundant to all - abundant to the powerful.</td>
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<td></td>
<td>• Be careful with saying that land was &quot;abundant&quot; – what about Native Americans?</td>
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<td>• Land was abundant but it came at the expense of near extermination of the native population, many who died from disease before ever encountering a &quot;white man&quot;.</td>
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<td></td>
<td>• Land is no less &quot;abundant&quot; now then it was 300 years ago.</td>
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<td>38)</td>
<td>Transportation of raw materials influenced the placement of settlements/cities.</td>
<td>1.2121</td>
<td>2.0000</td>
<td>0.99240</td>
<td>0.0</td>
<td>9.1</td>
<td>12.1</td>
<td>27.3</td>
<td>51.5</td>
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<td></td>
<td>• And commerce.</td>
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The availability of raw materials influenced placement of cities, transportation of materials came later.

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<th>% SA 2</th>
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</table>
| 39)    | Land has provided food, timber, wildlife, minerals, and other natural resources that have helped build the USA.  
  As long as water was close by. | 1.0606 | 1.0000 | 0.99810 | 0.0 | 12.1 | 9.1 | 39.4 | 39.4 |
| 40)    | Wisconsin landscapes have been shaped by long-term physical and ecological change processes. | 0.4848 | 1.0000 | 1.30195 | 9.1 | 18.2 | 12.1 | 36.4 | 24.2 |
| 41)    | The Wisconsin landscape has changed based on meeting the needs of a growing society.  
  Among other things.  
  Needs and wants!  
  Changes were made for short-term gain at the expense of long-term health. This is intergenerational theft. | 0.6364 | 1.0000 | 1.11294 | 6.1 | 9.1 | 21.2 | 42.4 | 21.2 |
| 42)    | Land supports plant life, which is essential for human life.  
  Sounds more like a biology topic. | 0.6970 | 1.0000 | 1.18545 | 3.0 | 15.2 | 24.2 | 24.2 | 33.3 |
| 43)    | Prime agricultural land is critical for food production. | 1.0909 | 1.0000 | 0.91391 | 0.0 | 9.1 | 9.1 | 45.5 | 36.4 |
Many factors influence the crop yield, such as tillage methods, irrigation, fertilizer/pesticide use, etc.

Kids might not agree with this statement given all the technological advances in hydroponics, etc.

Prime agricultural land can also support other uses such as stormwater planning and attenuation.

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<th>% SA 2</th>
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<tbody>
<tr>
<td>44)</td>
<td>Recreational areas are a part of a community’s land uses.</td>
<td>0.8485</td>
<td>1.0000</td>
<td>1.06423</td>
<td>6.1</td>
<td>3.0</td>
<td>18.2</td>
<td>45.5</td>
<td>27.3</td>
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<tr>
<td>45)</td>
<td>A steady and rapid rise in the number of visitors to many outdoor recreational areas have raised serious problems for the maintenance of the quality of the area.</td>
<td>0.5758</td>
<td>1.0000</td>
<td>1.27550</td>
<td>9.1</td>
<td>12.1</td>
<td>18.2</td>
<td>33.3</td>
<td>27.3</td>
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<td></td>
<td>There are many, many other problems that affect outdoor recreation areas, e.g., lack of adequate funding for maintenance and development, lack of trained staff, etc.</td>
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<td>Benefits of outdoor activities: increased awareness and drive for stewardship.</td>
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<td>46)</td>
<td>Open space can perform many valuable functions.</td>
<td>1.2121</td>
<td>2.0000</td>
<td>1.13901</td>
<td>6.1</td>
<td>3.0</td>
<td>9.1</td>
<td>27.3</td>
<td>54.5</td>
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• And is available for the public.

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<tr>
<td>47)</td>
<td>Natural areas are being converted to agricultural, recreational, residential, and commercial purposes. (N=32)</td>
<td>0.9063</td>
<td>1.0000</td>
<td>1.02735</td>
<td>3.1</td>
<td>9.4</td>
<td>9.4</td>
<td>50.0</td>
<td>28.1</td>
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<td></td>
<td>Yes, agreed, but I think it is very important to define what is a “natural area” vs. an undeveloped or open space area, vacant from urban forms of use. I don’t believe that agriculture—for example, fallow pasture, should be considered a natural area. There are other conversions happening as well, brownfields to new development. Rural to Urban uses, agriculture to residential, etc.</td>
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<tr>
<td></td>
<td>And what is lost when this happens?</td>
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<td></td>
<td>Nationwide.</td>
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<td>48)</td>
<td>The definition of open space can vary from culture to culture and country to country.</td>
<td>0.4242</td>
<td>1.0000</td>
<td>1.09059</td>
<td>6.1</td>
<td>12.1</td>
<td>30.3</td>
<td>36.4</td>
<td>15.2</td>
</tr>
<tr>
<td>49)</td>
<td>Historic preservation safeguards physical links to the past.</td>
<td>0.8485</td>
<td>1.0000</td>
<td>1.00378</td>
<td>0.0</td>
<td>15.2</td>
<td>12.1</td>
<td>45.5</td>
<td>27.3</td>
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<tr>
<td>50)</td>
<td>Historically significant buildings and landscapes make a community unique and</td>
<td>1.3636</td>
<td>2.0000</td>
<td>0.85944</td>
<td>3.0</td>
<td>0.0</td>
<td>6.1</td>
<td>39.4</td>
<td>51.5</td>
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</table>
• Sense of Place" is a very difficult concept that will need to be well explained.

Economic development is a chief concern among communities, which involves creating more industry and commerce and equals jobs and incomes.

• Make sure kids realize that there are many ways to promote economic development – doesn’t all have to be retail or industry – recreation, tourism, and other land uses related to conservation and sound land use decisions are also part of economic development.

• But the concern is only limited to the short term as far as planning. Blind support of economic development becomes a "knee jerk" reaction when decisions do not consider long-term consequences.

• This is an over-simplification of what economic development is.

• Some towns, retirees, and 2nd homeowners would argue about it
being a chief concern.

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</table>
| 52)    | Economic development encourages communities to build a strong local economic support base.  
(N=32)                                                                 | 0.4688| 1.0000 | 1.16354           | 6.3     | 15.6  | 21.9 | 37.5 | 18.8  |
|        | • It can depending on goals it can create a dependency on other communities.          |       |        |                    |         |       |      |      |       |
|        | • I don’t agree. Economic development results in a strong economic base.  
Infrastructure is necessary to support the development.      |       |        |                    |         |       |      |      |       |
|        | • Don’t communities encourage economic development to build a strong economic base and not the other way around? |       |        |                    |         |       |      |      |       |
| 53)    | Many downtown areas in communities are suffering from a decreased number of stores and shoppers, partially due to the rise in the number of malls and “big box” retailers.  
• This is a very general statement – “Many” and “partially” – how can you argue such a general statement.  
However I don’t think we should be teaching children that “big box” retailers are bad. | 0.4242| 1.0000 | 1.37000           | 12.1    | 18.2  | 9.1  | 36.4 | 24.2  |
- Good discussion topic.
- This is tied to the lack of analysis of the consequences from allowing these retailers to move into the community.
- There are many other reasons as well, e.g., higher crime rates, lack of parking, traffic congestion, higher prices, less convenience, etc.
- This statement is still excessively biased. There are other factors beyond “big box” that cause decline in downtown areas.

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</table>
| 54)    | Downtowns are changing in response to changing economic factors.  
• Vague.  
• Not just economic factors.  
• Include the corollary – urban fringe, rural areas changing too.  
• THIS is a more accurate statement. | 0.9697 | 1.0000 | 1.10354 | 3.0    | 9.1    | 15.2  | 33.3  | 39.4   |
| 55)    | Housing is often a land use issue, which includes housing options, housing affordability, and housing availability. | 1.1818 | 1.0000 | 1.04447 | 6.1    | 0.0    | 9.1   | 39.4  | 45.5   |
| 56)    | Shelter is a basic human need.  
• I really think that this is universally understood... | 0.8485 | 1.0000 | 1.22783 | 6.1    | 9.1    | 18.2  | 27.3  | 39.4   |
• It is right up there in the top three of food, clothing, shelter.

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<tr>
<td>57)</td>
<td>Society needs a variety of housing types to shelter people with diverse social, physical, and economic needs.</td>
<td>1.2727</td>
<td>2.0000</td>
<td>1.03901</td>
<td>3.0</td>
<td>6.1</td>
<td>6.1</td>
<td>30.3</td>
<td>54.5</td>
</tr>
<tr>
<td>58)</td>
<td>Within the Bill of Rights, there are several amendments that are important to land use (for example, the 5th, 10th, and the 14th.)</td>
<td>1.3030</td>
<td>1.0000</td>
<td>0.72822</td>
<td>0.0</td>
<td>3.0</td>
<td>6.1</td>
<td>48.5</td>
<td>42.4</td>
</tr>
<tr>
<td>59)</td>
<td>Public and private property rights are protected under the constitution.</td>
<td>1.2121</td>
<td>1.0000</td>
<td>0.99240</td>
<td>3.0</td>
<td>3.0</td>
<td>12.1</td>
<td>33.3</td>
<td>48.5</td>
</tr>
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<td>60)</td>
<td>The due process and equal protection concepts are designed to achieve fairness in how governments treat all citizens and a technical correctness in following procedures. • It may have been designed that way but if you have more wealth and connections to attorneys, the pendulum is skewed in your favor.</td>
<td>0.9697</td>
<td>1.0000</td>
<td>1.10354</td>
<td>6.1</td>
<td>3.0</td>
<td>15.2</td>
<td>39.4</td>
<td>36.4</td>
</tr>
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<td>61)</td>
<td>Our commitment to due process means that citizens have a duty to participate in community decision-making. • Duty and right.</td>
<td>0.9697</td>
<td>2.0000</td>
<td>1.23705</td>
<td>3.0</td>
<td>12.1</td>
<td>21.2</td>
<td>12.1</td>
<td>51.5</td>
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| 62)    | There are cultural differences in the notion of land and the ownership of land.  
• There is an urban, rural, suburban divide.  
• Not in this country there aren't.                                                                                                                                   | 0.6970| 1.0000| 1.13150            | 9.1     | 0.0    | 27.3 | 39.4 | 24.2  |
| 63)    | There are a number of federal laws that influence land use policies at various levels of government.                                                                                                            | 0.9394| 1.0000| 1.11634            | 6.1     | 3.0    | 18.2 | 36.4 | 36.4  |
| 64)    | Federal and state courts cases influence land use decisions.                                                                                                                                                           | 1.0000| 1.0000| 1.14564            | 6.1     | 3.0    | 18.2 | 30.3 | 42.4  |
| 65)    | Local government has the power to regulate land use.  
• There are various degrees by which local governments (towns vs. counties for example) can regulate land use.  
• However, this power is given to them by the states.                                                                                                              | 1.5455| 2.0000| 0.61699            | 0.0     | 0.0    | 6.1  | 33.3 | 60.6  |
| 66)    | Although faced with similar issues, each state in the USA has its own set of laws that shape land use.                                                                                                               | 1.0000| 1.0000| 0.90139            | 0.0     | 6.1    | 21.2 | 39.4 | 33.3  |
| 67)    | Public participation is an important part in making land use decisions.                                                                                                                                             | 1.5152| 2.0000| 0.83371            | 3.0     | 0.0    | 3.0  | 30.3 | 63.6  |
- No other industry is so regulated.
- Public participation is an important part in making land use planning; following planning, land use decisions are primarily ministerial.

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<tbody>
<tr>
<td>68)</td>
<td>Various levels of Wisconsin’s government all play a part in regulating land use decisions.</td>
<td>1.3636</td>
<td>1.0000</td>
<td>0.78335</td>
<td>0.0</td>
<td>6.1</td>
<td>0.0</td>
<td>45.5</td>
<td>48.5</td>
</tr>
<tr>
<td></td>
<td>Provide an overview is important re: the various parties involved.</td>
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<td>But state role is more limited to delegation.</td>
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<td>69)</td>
<td>Wisconsin Act 9 established a new expanded role for planning in Wisconsin. (N=31)</td>
<td>0.6774</td>
<td>1.0000</td>
<td>1.16582</td>
<td>6.5</td>
<td>9.7</td>
<td>19.4</td>
<td>38.7</td>
<td>25.8</td>
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<td></td>
<td>I agree this is true, however, I think this statement should be revised to be more direct. The major thrust of the laws is about local comprehensive planning.</td>
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<td></td>
<td>Do you want this curriculum out live Act 9?</td>
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<td>Not true - the law provides a framework for what plans should include and for how plans should be adopted. The only thing “new” in the</td>
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law is the linking of decisions to plans (in the future).

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</table>
| 70)    | Land use patterns can be efficient or inefficient. (N=32)  
• Efficient for what in particular? Traffic patterns, services, etc?  
• Define “efficient” – the importance of the amount of land used has more to do with the impact on natural systems and functions in that place than simply on the land surface covered. | 1.0938 | 1.0000 | 0.96250 | 3.1    | 3.1   | 12.5   | 43.8  | 37.5  |
| 71)    | The word “sprawl” has different connotations to different people. | 0.4242 | 1.0000 | 1.09059 | 3.0    | 21.2  | 21.2   | 39.4  | 15.2  |
| 72)    | There are both positive and negative consequences and reasons for sprawl.  
• I don’t see anything positive about sprawl depending on the definition. | 0.3939 | 1.0000 | 1.32144 | 12.1   | 15.2  | 15.2   | 36.4  | 21.2  |
| 73)    | Efficient land use patterns can be characterized as “smart growth.”  
• “Smart Growth” has different means at the state and national levels.  
• Just about any development can be argued to be “smart growth” - I believe “smart growth” needs a better | 0.4848 | 1.0000 | 1.14895 | 6.1    | 15.2  | 21.2   | 39.4  | 18.2  |
definition. Growth can serve “the economy, the community and the environment” in one community and harm “the economy, the community and the environment of a neighboring community.

- Smart growth = balanced approach
- Efficient land use patterns that include residential subdivisions with limited services in a rural setting can serve this definition of smart growth listed below. Some interests would disagree fundamentally with this statement. It is the decision making and patterns over time that count.
- “Smart Growth” is only a label, a Catch Phrase – What is really important is that efficient land use patterns are becoming increasingly critical, lest we damage our environment!
- What if “smart growth” ceases to be a popular term?

| 74) Land use decisions affect the cost of government infrastructure. (N=32) | 1.5625 | 2.0000 | 0.8071 | 3.1 | 0.0 | 0.0 | 31.3 | 65.6 |
- Again, it’s over time in a cumulative sense where costs are really affected. One single land use decision doesn’t typically have a grand affect on costs,
but multitude of decisions impact the true costs of infrastructure. Of course if a new subdivision of 300 residential lots is being proposed, it is different than one approval of a land division for 3 residential lots. In rural areas, the impact is also quite different than in areas where growth is anticipated, expected, and existing services can more readily be provided.

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| 75)    | Scattered development patterns can lead to increased dependence on automobiles.  
          • Again a general statement, I don't believe we should teach children that someone living in a "scattered development" is worse than someone living in a large compact city.  
          • And hinder public transportation services.  
          • But it is also true that the standard zoning model of the past 50 years, which emphasizes separate uses has led to increased use of automobiles. | 1.2121 | 2.0000 | 1.05349 | 3.0 | 6.1 | 9.1 | 30.5 | 51.5 |
| 76)    | Land use decisions shape demand for transportation and transportation investment decisions shape the future | 1.4848 | 2.0000 | 0.90558 | 3.0 | 3.0 | 0.0 | 30.6 | 63.6 |
### Pattern of Land Use

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<tbody>
<tr>
<td>77)</td>
<td>Transportation is multi-modal – there are multiple modes of transportation.</td>
<td>1.0606</td>
<td>2.0000</td>
<td>1.24848</td>
<td>6.1</td>
<td>9.1</td>
<td>9.1</td>
<td>24.2</td>
<td>51.5</td>
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<td></td>
<td>• Economic viability to serve dispersed populations is important concept.</td>
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<td></td>
<td>• There are but we need to clarify that auto and truck are overwhelmingly the predominate mode.</td>
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<tr>
<td></td>
<td>• Transportation should be multi-modal, but in many cases, it is not.</td>
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<td>78)</td>
<td>Surface and ground water quality and quantity are affected by land use decisions.</td>
<td>1.4545</td>
<td>2.0000</td>
<td>0.83258</td>
<td>0.0</td>
<td>6.1</td>
<td>3.0</td>
<td>30.6</td>
<td>60.6</td>
</tr>
<tr>
<td>79)</td>
<td>Air and water are public goods and are “owned” by the public in trust.</td>
<td>1.1212</td>
<td>1.0000</td>
<td>0.99240</td>
<td>0.0</td>
<td>12.1</td>
<td>6.1</td>
<td>39.4</td>
<td>42.4</td>
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<tr>
<td></td>
<td>• Owned is a poor word to use. We have an obligation to protect the air and water but we do not own it even though there are legal documents stating this.</td>
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<tr>
<td>80)</td>
<td>The “tragedy of the commons” occurs when the cumulative effects of many people trying to exploit a common-property resource eventually exhausts or</td>
<td>0.6970</td>
<td>1.0000</td>
<td>1.21153</td>
<td>9.1</td>
<td>6.1</td>
<td>18.2</td>
<td>39.4</td>
<td>27.3</td>
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</table>
There are better ways to express the issues than is done in this sentence. This statement is written in a much more subjective tone than all other statements. Remove the special interest rhetoric in the statement. I think you would be hard pressed to find planners using a term “tragedy of commons” in a public dialogue to develop consensus. The word “exploit” is also subjective language.

Very important concept – what about explaining the concept in terms of the Commons being neglected because they don’t “belong to” and aren’t the “responsibility of” any one person, only the group.

The other critical lesson of the tragedy of the commons is that private landownership avoids the tragedy of the commons because individuals are better stewards of something they own.

This may be over the heads of most high school students unless a lot of time is spent on having students experience it firsthand.

| 81) | The point where land meets water is an | 1.1515 | 1.0000 | 1.06423 | 3.0 | 6.1 | 12.1 | 30.3 | 48.5 |
### Table

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<td>82)</td>
<td>Land along the shores of Wisconsin provides habitats for many different species of organisms (including humans).</td>
<td>1.0303</td>
<td>1.0000</td>
<td>0.84723</td>
<td>0.0</td>
<td>6.1</td>
<td>15.2</td>
<td>48.5</td>
<td>30.3</td>
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</table>
| 83)    | Land along the shores of Wisconsin’s lakes and rivers are increasingly being developed due to consumer demand and are of great monetary value.  
- Content rather than concept.  
  Shorelines are not the only fragile area being developed. All fragile areas should be carefully considered in planning land use. “Monetary value” seems inappropriate in a concept—but it plays a huge role in how we use land—I’m not sure how to deal with this one.  
- And humans like to put their stamp of concrete or European grass upon the old landscape thereby destroying the very thing that attracted them to the shore in the first place. | 0.8788 | 1.0000 | 1.02340            | 3.0     | 6.1   | 21.2| 39.4| 30.3  |
| 84)    | Growth management is a land use planning strategy.  
- It can have some role. Until | 0.8485 | 1.0000 | 1.09320            | 3.0     | 9.1   | 21.2| 33.3| 33.3  |
increasing population issues are addressed, you can only control so much growth.

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<td>85)</td>
<td>Growth management is a community decision, not an individual process.</td>
<td>0.6061</td>
<td>1.0000</td>
<td>1.41287</td>
<td>12.1</td>
<td>15.2</td>
<td>6.1</td>
<td>33.3</td>
<td>33.3</td>
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<td>• It is individual, community, state and national.</td>
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<td>• We can make individual decisions also but can be done in combination with community planning in support of sustainable practices.</td>
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<td>86)</td>
<td>Growth management is a commitment to plan carefully for the growth that comes to an area so as to achieve a responsible balance between the protection of natural systems (land, air, water) and the development required to support growth in the residential, commercial, and retail areas.</td>
<td>1.2424</td>
<td>1.0000</td>
<td>0.96922</td>
<td>3.0</td>
<td>3.0</td>
<td>9.1</td>
<td>36.4</td>
<td>48.5</td>
</tr>
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<td></td>
<td>• Growth management in its purest form is simply that – managing growth – That may be by protecting the natural environment, or it could simply be limiting the number of permits, regardless of the natural environment.</td>
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<td>• Some would call this smart growth.</td>
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• *It is balancing natural resource protection and conversion of the land to human focused uses.*
• *And all other uses of land e.g., agriculture, open space, timber production, recreational lands, etc.*

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<tr>
<td>87)</td>
<td>Growth management can involve timing and sequential controls for growth and ranges from restrictive subdivision and zoning regulations, “permits”, and “caps”, to phased development and urban growth boundaries.</td>
<td>0.5758</td>
<td>1.0000</td>
<td>1.34699</td>
<td>12.1</td>
<td>12.1</td>
<td>9.1</td>
<td>39.4</td>
<td>27.3</td>
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<td>88)</td>
<td>Techniques, tools, and methods can have a variety of impacts.</td>
<td>0.4242</td>
<td>1.0000</td>
<td>1.39262</td>
<td>18.2</td>
<td>3.0</td>
<td>21.2</td>
<td>33.3</td>
<td>24.2</td>
</tr>
<tr>
<td>89)</td>
<td>Individual actions may seem insignificant, but unmanaged growth is the result of cumulative impacts of individual decisions. <em>The problems of economically depressed areas should be presented.</em> <em>If you live on a shoreline or storm drain and rain herbicides, pesticides, unneeded stormwater onto the landscape.</em></td>
<td>1.1212</td>
<td>1.0000</td>
<td>1.16613</td>
<td>6.1</td>
<td>6.1</td>
<td>6.1</td>
<td>33.3</td>
<td>48.5</td>
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growth. Is that a good or a bad thing?

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<td>90)</td>
<td><strong>Land management in the future will be a chief concern, due to the increasing population and finite amount of land on the earth.</strong>&lt;br&gt;• We still have a great deal of open land — “future” is very vague. One year from now I disagree with the above statement. 100 years from now I agree.&lt;br&gt;• Management in the future does not negate the need to do so right now. When is the future upon us?&lt;br&gt;• This can be misleading that land management in the past wasn't a concern.&lt;br&gt;• In already populated areas yes, but in, say, Montana? Not in their viewpoint certainly.&lt;br&gt;• It cannot wait till the future. We need action now.&lt;br&gt;• Two percent of the earth’s land area is currently developed (not counting farm land). I think we've got a long way to go.</td>
<td>1.0909</td>
<td>1.0000</td>
<td>1.20840</td>
<td>9.1</td>
<td>0.0</td>
<td>12.1</td>
<td>30.3</td>
<td>48.5</td>
</tr>
<tr>
<td>91)</td>
<td><strong>Land use regulations (both good and bad)</strong></td>
<td>0.8788</td>
<td>1.0000</td>
<td>1.05349</td>
<td>3.0</td>
<td>9.1</td>
<td>15.2</td>
<td>42.4</td>
<td>30.3</td>
</tr>
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</table>
reflect the will of the public – at least those who participate in the local government process.

- Emphasis on importance of participation and the public process – are there better ways to measure the “will of the public” than at late night meetings? Applicability of technology to involve more people, etc.?
- Isn’t voting for elected officials considered part of this participation?
- Only if they are implemented consistently.
- But, it is also the role of the public planners to provide equitable services for those that do not participate. If you don’t show up, you’re not going to be forgotten about... that’s why planning is important.
- This could be argued, but the concept is very important.
- Some rules have the best intentions but can become perverted or ignored altogether.

92) Tools for implementation of land use plans include zoning, subdivision ordinances, utility extensions, septic field standards, capital investments, and incentive and educational programs.

<table>
<thead>
<tr>
<th>92)</th>
<th>Tools for implementation of land use plans include zoning, subdivision ordinances, utility extensions, septic field standards, capital investments, and incentive and educational programs.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1.2121</td>
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</table>
- Very broad scope to present—but very important.
- Septic field standards have been proven to be a failed land use tool; but an important public health tool.

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<th>Number</th>
<th>Concept (and comments)</th>
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<tbody>
<tr>
<td>93)</td>
<td>The way in which land is used directly affects natural resources (local, regional, and global).</td>
<td>1.2424</td>
<td>2.0000</td>
<td>0.96922</td>
<td>0.0</td>
<td>9.1</td>
<td>9.1</td>
<td>30.3</td>
<td>51.5</td>
</tr>
<tr>
<td>94)</td>
<td>Land use decisions can affect the functions of natural resources. (N=32)</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.16398</td>
<td>3.1</td>
<td>12.5</td>
<td>9.4</td>
<td>31.3</td>
<td>43.8</td>
</tr>
<tr>
<td>95)</td>
<td>The way in which our physical environment is planned (or not planned) greatly influences the quality of natural resources and our lives.</td>
<td>1.1515</td>
<td>1.0000</td>
<td>1.03444</td>
<td>3.0</td>
<td>3.0</td>
<td>18.2</td>
<td>27.3</td>
<td>48.5</td>
</tr>
<tr>
<td>96)</td>
<td>Clean air, clean water, and more efficient and compact development are all at least partially based on sustainable land use.</td>
<td>1.0313</td>
<td>2.0000</td>
<td>1.28225</td>
<td>6.3</td>
<td>9.4</td>
<td>12.5</td>
<td>18.8</td>
<td>53.1</td>
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(N=32)

- I wouldn't muddy the water by using sustainability, what about planning?

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</table>
| 97)    | The future is inherent in planning for communities. (N=32)  
- Planning is important for the future of our communities. | 0.5938 | 1.0000 | 1.49966 | 15.6 | 6.3 | 25.0 | 9.4 | 43.8 |
| 98)    | Because the majority of the food, water, fiber, and space that supports humans come from the land, land is central in considering the quality of the human future. | 0.8788 | 1.0000 | 1.21854 | 6.1 | 9.1 | 15.2 | 30.3 | 39.4 |
| 99)    | Citizens elect individuals to represent them in the government who make the laws and decide which policies will be followed.  
- Citizens don't elect individuals to determine which policies will be followed. All policies should be followed. Citizens elect officials to create policies that will better their standing.  
- Again more of a basic civics principle.  
- Special interest groups place their select person in higher offices. Local | 0.8788 | 1.0000 | 1.24392 | 9.1 | 6.1 | 9.1 | 39.4 | 36.4 |
elections may be of higher importance.

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<tr>
<td>100)</td>
<td>The public cannot act effectively in the realm of land use unless they are well informed about the general process and proposed future actions. • This is misleading. Any public, well-mobilized can be effective in land use matters, regardless of their level of well-informedness.</td>
<td>0.9394</td>
<td>1.0000</td>
<td>1.17099</td>
<td>3.0</td>
<td>15.2</td>
<td>6.1</td>
<td>36.4</td>
<td>39.4</td>
</tr>
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<td>101)</td>
<td>Citizens need to understand the relationship between natural resources and economic development, land use, community facilities, and transportation. • Important to discuss the link between land use and economics ignoring environment has its costs as does over regulation. • And Taxes!!! • This is more important to people that have the means and wherewithall. People that are fighting for a meal or heat in their home do not have the resource or knowledge to deal with these types of issues.</td>
<td>1.1515</td>
<td>2.0000</td>
<td>1.17583</td>
<td>3.0</td>
<td>12.1</td>
<td>6.1</td>
<td>24.2</td>
<td>54.5</td>
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| 102)   | Public involvement is essential for successful planning – a plan will generally get broad support if all parties are involved.  
   • If all parties points of view are addressed. | 1.2727 | 1.0000 | 0.94448            | 3.0     | 3.0   | 6.1  | 39.4 | 48.5  |
| 103)   | Community members will feel more ownership of a plan if they play a role in its development. | 1.3030 | 2.0000 | 0.98377            | 3.0     | 3.0   | 9.1  | 30.3 | 54.5  |
| 104)   | Visioning is a participatory tool utilized in many communities, which is a process by which a community envisions the future it wants and plans how to achieve it. Visioning generally asks the three questions – what do people want to preserve in the community, what do people want to create in their community, and what do people want to change in their community?  
   • This is only one tool/technique used in the creation of a ‘problem statement’ in the early planning process.  
   • Shouldn’t others be identified and discussed?  
   • Works best if there are drawings/illustrations that actually | 0.7879 | 1.0000 | 0.99240            | 3.0     | 6.1   | 24.2 | 42.4 | 24.2  |
show what the community will look like.

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| 105)   | Citizens are generally apathetic to land use decisions until or unless they are directly affected – NIMBY.  
• I don’t think NIMBY is always congruent with the statement. Citizens are not always self-serving when they become involved in issues. For example, folks sometimes disagree with Wal-Mart locating in their community. It may not be located near them, nor may it adversely affect them personally. If you remove NIMBY from the statement, I would not have a concern with it.  
• Citizens are generally apathetic to all forms of public participation. But it is getting better.  
• I think this is becoming less and less the case. | 0.6364  | 1.0000 | 1.24545 | 9.1     | 12.1   | 9.1   | 45.5 | 24.2 |
| 106)   | Citizens have a responsibility to become informed and are a valuable source of information. | 1.2424  | 1.0000 | 0.86712 | 0.0     | 3.0    | 18.2  | 30.3 | 48.5 |
| 107)   | Long-term planning is central to achieving | 1.1515  | 1.0000 | 1.09320 | 6.1     | 3.0    | 6.1   | 39.4 | 45.5 |
better land use and growth management.

- Long-term planning is central to achieving better land use and growth management.

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<tr>
<td>108)</td>
<td>Planning involves the careful study and analysis of current land use needs and the anticipation of future needs based on population projections - planning helps create more predictable, efficient, and sustainable land use. Overly simplistic statement. Doesn't adequately address the fact that future needs are also shaped by public participation and their desire to attract certain land uses. Also, fails to include planning decision-making processes by elected officials. Planning is not only based on population projections, but on the analysis of many trends.</td>
<td>1.0909</td>
<td>1.0000</td>
<td>1.12815</td>
<td>3.0</td>
<td>9.1</td>
<td>12.1</td>
<td>27.3</td>
<td>48.5</td>
</tr>
<tr>
<td>109)</td>
<td>A comprehensive plan is a representation of what a community wants to be in the future - it is an orderly, open approach to determining local needs, setting goals and priorities, and developing a guide for action. It includes widespread</td>
<td>1.0606</td>
<td>1.0000</td>
<td>1.02894</td>
<td>0.0</td>
<td>9.1</td>
<td>21.2</td>
<td>24.2</td>
<td>45.5</td>
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</table>
geographical coverage of the community, all subject matter related to the physical development of the community, and must consider at least 20 years into the future. It many times includes public participation as well.

- **Under the Comprehensive Planning Law, public involvement is required as part of the planning process.**
- **Some plans are only for 10-15 years; it should always include public participation.**
- **Comprehensive planning SHOULD ALWAYS include public participation.**

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<tr>
<th>Number</th>
<th>Statement</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Value 4</th>
<th>Value 5</th>
<th>Value 6</th>
<th>Value 7</th>
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<tbody>
<tr>
<td>110)</td>
<td>A comprehensive plan provides a context for important future decisions for a community. (N=32)</td>
<td>1.1875</td>
<td>1.0000</td>
<td>0.96512</td>
<td>0.0</td>
<td>9.4</td>
<td>9.4</td>
<td>34.4</td>
<td>46.9</td>
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<td></td>
<td>Need for flexibility to address future changes.</td>
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<tr>
<td></td>
<td>Not only context but the guide.</td>
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<tr>
<td>111)</td>
<td>Land use planning is a dynamic process and includes planning, implementation, enforcement, and evaluation.</td>
<td>1.1515</td>
<td>1.0000</td>
<td>1.00378</td>
<td>3.0</td>
<td>6.1</td>
<td>6.1</td>
<td>42.4</td>
<td>42.4</td>
</tr>
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<td></td>
<td>Land use planning may set a course for those activities, but does not include those activities (You plan, then you act, you don’t plan, and then plan-act, plan-enforce, plan-evaluate).</td>
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<td>Number</td>
<td>Concept (and comments)</td>
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<td>Median</td>
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<tr>
<td>112)</td>
<td>Land use planning is one part of a comprehensive plan that looks at connections between various components.</td>
<td>0.8182</td>
<td>1.0000</td>
<td>1.21075</td>
<td>6.1</td>
<td>9.1</td>
<td>18.2</td>
<td>30.3</td>
<td>36.4</td>
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</tbody>
</table>
| 113)   | Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.  
• *It also aims to achieve a balance socially, economically, and environmentally.* | 0.9394 | 1.0000 | 1.29758           | 9.1     | 9.1   | 3.0  | 36.4 | 42.4  |
| 114)   | Land use planning can play a role in improving the sustainability of communities, due to planning being related to how, where and when human development occurs.  
• *Planning should also direct where and how development occurs.* | 0.8485 | 1.0000 | 1.22783           | 9.1     | 6.1   | 9.1  | 42.4 | 33.3  |
Appendix M

Second Round Statistics for the Delphi Process
Appendix M = Responses to second round of the Delphi Survey

In the second round of the Delphi N=29 for all concepts, unless otherwise noted. The lower quartile of the range of the means is 0.00 to 0.4310 (therefore, all concepts within this range were eliminated.)

Key:
- **SD**= Strongly disagree that this should be included in the conceptual framework (-2 on Likert scale)
- **D** = Disagree that this should be included in the conceptual framework (-1 on Likert scale)
- **N** = Neutral (0 on Likert scale)
- **A** = Agree that this should be included in the conceptual framework (1 on Likert scale)
- **SA**= Strongly agree that this should be included in the conceptual framework (2 on Likert scale)

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<th>Mean</th>
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<th>Standard deviation</th>
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<th>%N</th>
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<th>%SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Land use is many things to many people.</td>
<td>0.1379</td>
<td>0.0000</td>
<td>1.30176</td>
<td>20.7</td>
<td>0.0</td>
<td>37.9</td>
<td>27.6</td>
<td>13.8</td>
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<tr>
<td></td>
<td>• Young children should be taught that although some outcome or solution could look positive to them, it can be negative to others.</td>
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<td></td>
<td>• Important for kids to know that “land use” is interpreted very differently by different people.</td>
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<td></td>
<td>• There must be a foundational understanding that land use IS an extremely broad topic, and that narrow solutions are often wrong.</td>
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<td></td>
<td>• Too general.</td>
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<tr>
<td>2)</td>
<td>Land uses exist within cultural, economic, physical, environmental, and social contexts.</td>
<td>1.3103</td>
<td>1.0000</td>
<td>0.76080</td>
<td>0.0</td>
<td>3.4</td>
<td>6.9</td>
<td>44.8</td>
<td>44.8</td>
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<tr>
<td></td>
<td>• Important – kids need an</td>
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understanding of where Land Use planning relates to these aspects of society – it's not just about where to put roads and buildings.

- Establishes the elements to consider in planning land use.

3) Land use has a historical perspective.

- Students should learn that there is a historical perspective to land use, good and negative aspects of the past use, learn from mistakes, and apply lessons learned, best practices and protection to land use. As we hear so often, failure to learn from the past and we are doomed to repeat the same mistakes again. Also, apply what we have done well in the past.

- Yes, there is historic context to land use. But “kids” have already had their history classes. Planning is forward thinking. That's what we bring to the table that's different. I say give this the hatchet. It will come up again elsewhere and more focused.

- I guessed that this statement would include something about the accretion of different uses on the land, and that some (many) of the land uses adopted in the past continue to have a
profound impact on how cities function today.

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<th>Number</th>
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<th>Standard Deviation</th>
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</table>
| 4)     | Since many interests compete for limited available land, the challenge in deciding how land will be used is complex.  
        - The decisions needed in land use are not complex, but the journey toward the destination can take many twisting paths. We know better today than we did 5, 10, and 25 years ago.  
        - I'm still neutral on this – decisions are not ALWAYS complex. | 1.1724 | 1.0000  | 0.75918            | 0.0     | 0.0     | 20.7  | 41.4  | 37.9   |
| 5)     | Land use planning and decisions require an analysis of many alternatives and points of view.  
        - Important for students to understand that there is competing interests for land uses and an analysis of these uses comprises good planning.  
        - The idea of public participation suggested by this statement is very important to the idea of land use planning generally. | 1.4828 | 2.0000  | 0.63362            | 0.0     | 0.0     | 6.9   | 37.9  | 55.2   |
| 6)     | Trade-offs are involved in any land use decision (both positive and negative) | 1.1379 | 1.0000  | 0.78940            | 0.0     | 6.9     | 3.4   | 58.6  | 31.0   |
Many trade-offs and compromises have already been made over the last century. The expectation of many for science-based decisions is for a burden of proof in science beyond a shadow of doubt. Many political decisions are allowed much more leeway for what we think is the best decision outcome. Science-based decisions should be allowed this same latitude for land use applications.

Implies no "right" or "wrong" decision.

Fundamental... You can’t please everyone, but you still have to make decisions. Negative consequences in the short term may have positive consequences in the long term or vice versa. Similarly, a decision that negatively impacts you personally may be for the public good.

There is no perfect land use practice.

What you do to a piece of land affects not only that piece but also all the land around it.

For me, the idea that trade-offs have to be made, and that there are often winners and losers despite our best efforts to fashion win-win solutions, is
fundamental to understanding what is at stake and why land use planning is so complex.

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<tbody>
<tr>
<td>7)</td>
<td>There are many factors that influence land use that should be considered when making a land use decision.</td>
<td>1.1379</td>
<td>1.0000</td>
<td>0.87522</td>
<td>3.4</td>
<td>0.0</td>
<td>10.3</td>
<td>51.7</td>
<td>34.5</td>
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<tr>
<td></td>
<td>• Too general.</td>
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<td>8)</td>
<td>Decisions about the use of land are value-laden decisions. (N=28)</td>
<td>0.5714</td>
<td>0.5000</td>
<td>0.83571</td>
<td>0.0</td>
<td>7.1</td>
<td>42.9</td>
<td>35.7</td>
<td>14.3</td>
</tr>
<tr>
<td></td>
<td>• Various cultures and regions place differing values about land use and have completely different perceptions based on social, cultural, economic, educational background, etc. People UP litter many areas with trash for various reasons. While I may consider it a travesty (coming from my urban environment) to see pristine areas trashed, local people may see that there is plenty more where that came from.</td>
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<tr>
<td></td>
<td>• Hopefully this is referring to the values of the public, not private interests. Could be confusing.</td>
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<td></td>
<td>• Public policy itself is value-laden.</td>
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<td>9)</td>
<td>Land use decisions affect everyone. • If we fail to protect, future generations will not even know what they have missed. Some would say, &quot;What they do not know will not hurt them.&quot; Native Americans thought multiple generations out to protect game, trees, land, and water. • Important and Fundamental. • Whether directly or indirectly.</td>
<td>1.3793</td>
<td>1.0000</td>
<td>0.56149</td>
<td>0.0</td>
<td>0.0</td>
<td>3.4</td>
<td>55.2</td>
<td>41.4</td>
</tr>
<tr>
<td>10)</td>
<td>Land use decisions can change the physical landscape in fundamental ways. • This concept teaches children that their decisions affect the land, which in turn, will affect many people. • The idea of filling wetlands and covering agricultural soils is the point that should be emphasized here.</td>
<td>1.1724</td>
<td>1.0000</td>
<td>0.96618</td>
<td>3.4</td>
<td>0.0</td>
<td>17.2</td>
<td>34.5</td>
<td>44.8</td>
</tr>
<tr>
<td>11)</td>
<td>Land use decisions involve rights of ownership, human needs, and social controls. • Basic concept that is important and fundamental. • Private property owners feel they can do anything they want with their land. I have heard complaints about one's</td>
<td>0.6225</td>
<td>1.0000</td>
<td>1.04457</td>
<td>3.4</td>
<td>6.9</td>
<td>34.5</td>
<td>31.0</td>
<td>24.1</td>
</tr>
</tbody>
</table>
neighbor building next door to someone, filling a foot higher, and exacerbating pools of water during storm events on the lower ground. Failure to deal with today's problem is plain theft from your neighbor, locality, and region. It is also intergenerational theft.
- It's a broad complex topic, but an important one to understand the overall scope of land use controls.
- Many of our current land use problems/environmental issues are a result of only looking at land use from a 'human needs' point of view! We are not the only inhabitants of this planet!
- There needs to be a discussion on private rights vs. the public good, and this statement is the place to begin.

<table>
<thead>
<tr>
<th>12)</th>
<th>Land use decisions involve balancing public interests and private rights.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Keep political views out of class.</td>
</tr>
<tr>
<td></td>
<td>It is the fundamental role of planning to balance these.</td>
</tr>
<tr>
<td></td>
<td>This is a very important concept for kids to understand – about the tension between these two views.</td>
</tr>
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<tr>
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<th>Land use decisions involve balancing public interests and private rights.</th>
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<td>It is the fundamental role of planning to balance these.</td>
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<tr>
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<td>This is a very important concept for kids to understand – about the tension between these two views.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13)</th>
<th>The land use decisions in one community</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.5517  2.0000  0.68589  0.0  3.4  0.0  34.5  62.1</td>
</tr>
</tbody>
</table>
can affect neighboring communities - the effects of land use practices are often not contained by geographical or political boundaries.

- Relevant for these soon-to-be voting citizens.
- Regional impacts of decisions and actions are important to understand in the planning process.
- Fundamental; ignoring this point has led to environmental racism and multiple problems throughout the world.

<table>
<thead>
<tr>
<th>Number</th>
<th>Concept</th>
<th>Mean</th>
<th>Median</th>
<th>Standard deviation</th>
<th>% SD</th>
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<th>%N</th>
<th>%A</th>
<th>%SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>14)</td>
<td>Demographic, social, economic, and technology changes and trends affect the amount of land used and how it is used.</td>
<td>0.8621</td>
<td>1.0000</td>
<td>0.87522</td>
<td>3.4</td>
<td>0.0</td>
<td>24.1</td>
<td>51.7</td>
<td>20.7</td>
</tr>
</tbody>
</table>
other needs.

- Technology and wealth allow rapid alteration of the landscape before policy and administrative rules with best management practices can add balance to protect the land. Poor people can strip their landscape and resources like trees for heat and cooking very rapidly with their escalating populations. They are in a survival mode.

- The ability to clear the top off of mountains to get to minerals, oversized farming equipment that requires greater inputs of petroleum, which requires more drilling on or offshore and many other technological feats can drastically impact how and how much land is used.

- Of course technology alters land use. The automobile is technology—as was the electric streetcar—and both changed land use. Agricultural technology changes land use, too. I think these are important points.

<table>
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<tr>
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<th>Median</th>
<th>Standard deviation</th>
<th>% SD -2</th>
<th>% D -1</th>
<th>% N 0</th>
<th>% A 1</th>
<th>% SA 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>15)</td>
<td><strong>Land supplies humans with most of the things they need for life.</strong></td>
<td>0.6207</td>
<td>1.0000</td>
<td>0.90292</td>
<td>0.0</td>
<td>13.8</td>
<td>24.1</td>
<td>48.3</td>
<td>13.8</td>
</tr>
</tbody>
</table>
- Fundamental. Land is a finite resource, therefore must be protected through smart land use planning decisions.
- And how we treat/use that land is why we are talking about land use in the first place.

<table>
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<th>Standard deviation</th>
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<th>% A 1</th>
<th>% SA 2</th>
</tr>
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<tbody>
<tr>
<td>16)</td>
<td>Land is a finite natural resource that exists in diverse forms and can have multiple uses.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>I will qualify this answer with in some cases humans are better left out of an area. We can enjoy mountaintops and streambed from afar without driving an SUV there and trampling all over.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>FINITE needs to be emphasized.</td>
<td>1.1379</td>
<td>1.0000</td>
<td>0.63943</td>
<td>0.0</td>
<td>0.0</td>
<td>13.8</td>
<td>58.6</td>
<td>27.6</td>
</tr>
<tr>
<td>17)</td>
<td>People's decisions affect the way the landscape changes over time.</td>
<td>0.6897</td>
<td>1.0000</td>
<td>1.00369</td>
<td>3.4</td>
<td>6.9</td>
<td>27.6</td>
<td>41.4</td>
<td>20.7</td>
</tr>
<tr>
<td></td>
<td>It seems to me that the point here is simply that humans can and do change the landscape... we do, and on whole we have a much larger affect than tornadoes, hurricanes, and floods.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Man chooses to re-develop after tornadoes, hurricanes, and</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</table>
earthquakes – often in the same place. We certainly affect the landscape and its changes.

- The person that lives along a shoreline removes the native vegetation along with the rest of his neighbors. Before long runoff increases, algae blooms are common, and the fish are diminished.

18) Land and land ownership means different things to different cultures within Wisconsin, the USA, and the world. (N=27)

- Important concept, and relevant to teach children how different cultures view ownership (Colonial vs. American Indian).
- Native Americans did not own land. Ownership is a European concept.
- Good for children to know other cultures than theirs may have different values; supports decisions being value-laden.
- As an example in Wisconsin, the differing attitudes to land ownership by Native Americans and White European settlers.
- I think a key term is “means.” Of course, the law is consistent nationally
in the US about property rights (or fairly consistent), but what land MEANS to people certainly varies culturally and geographically.

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<th>Median</th>
<th>Standard deviation</th>
<th>% SD -2</th>
<th>%D -1</th>
<th>%N 0</th>
<th>%A 1</th>
<th>%SA 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>19)</td>
<td>Land is owned by the public (through the government), private individuals and groups, and tribal governments in the USA. • Fundamental to understanding stakeholders in land use decisions.</td>
<td>0.6552</td>
<td>1.0000</td>
<td>0.81398</td>
<td>0.0</td>
<td>6.9</td>
<td>34.5</td>
<td>44.8</td>
<td>13.8</td>
</tr>
<tr>
<td>20)</td>
<td>The government has extensive powers over the use of private land: can exercise eminent domain to take private land for “public purposes”, taxation on land (real estate), police power (most common is zoning), and power of the public purse – how government spends funds for public purposes. • These are really important concepts that need to be explained thoroughly.</td>
<td>1.3793</td>
<td>1.0000</td>
<td>0.56149</td>
<td>0.0</td>
<td>0.0</td>
<td>3.4</td>
<td>55.2</td>
<td>41.4</td>
</tr>
<tr>
<td>21)</td>
<td>Land ownership can be seen as a “bundle of rights”: any single right may be separated from the bundle and sold, regulated, or given away. • This gets at the root cause of how we</td>
<td>1.2069</td>
<td>1.0000</td>
<td>0.86103</td>
<td>0.0</td>
<td>6.9</td>
<td>6.9</td>
<td>44.8</td>
<td>41.4</td>
</tr>
</tbody>
</table>
treat our land, air, and water.
- Very important concept for planning regulation, one that everybody should leave the education system knowing.

<table>
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<tr>
<th>Number</th>
<th>Concept</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>% SD²</th>
<th>%D²</th>
<th>%N²</th>
<th>%A²</th>
<th>%SA²</th>
</tr>
</thead>
</table>
| 22)    | The government can limit property rights to protect the safety of the public or its health, morals, or welfare – the right to use or develop property is not unlimited.  
  - Or...the govt. can use property (rights) in ways that harm the public – (cause pollution, etc.).  
  - If the purpose of land use education in K-12 is to develop an informed citizenry, this is a critical concept to be included. | 1.3793 | 1.0000 | 0.62185             | 0.0   | 0.0 | 6.9 | 48.3 | 44.8 |
| 23)    | People have been dependent on the land since the first humans lived on earth and humans have altered the land throughout history.  
  - I still believe this is on of the key concepts of this whole topic. | 1.1034 | 1.0000 | 0.67320             | 0.0   | 3.4 | 6.9 | 65.5 | 24.1 |
| 24)    | Transportation of raw materials influenced the placement of settlements/cities.  
  - Trade and commerce are fundamental. | 1.2414 | 1.0000 | 0.68947             | 0.0   | 0.0 | 13.8 | 48.3 | 37.9 |
It has been going on for thousands of years. Arrowheads from Wisconsin are found in the southwest. Corn, beans, and squash (seeds) from Central America found their way into NA. Cities formed along trade routes. Potatoes and tomatoes found their way into Europe and Africa and fueled world population growth as well as the slave trade of the 1700-1800s.

- Very important; recognizing influences that created land uses give context to settlement patterns; if influences no longer exists, patterns can be changed.
- And still influences land use planning today.
- Transportation and land use are interconnected.
- Important to understand Economic factors affecting land use.

<table>
<thead>
<tr>
<th>25) Land has provided food, timber, wildlife, minerals, and other natural resources that have helped build the USA.</th>
</tr>
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<tbody>
<tr>
<td>0.7931</td>
</tr>
</tbody>
</table>

- This was the original wealth that was exploited across the continent. Timber built Great Britain’s Navy. Furs were shipped to Europe until millions were wiped out. Spain sapped Central and
SA of their gold in the 1600-1700s.

- And still provides those materials that the USA still needs.
- I think this gets at a number of important points. The wealth of the US is tied to the resource base that was "available" once we grabbed it from those who lived here before. Our continued wealth may depend on using our remaining resources sustainably.

<table>
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<th>%D -1</th>
<th>%N 0</th>
<th>%A 1</th>
<th>%SA 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>26)</td>
<td>The Wisconsin landscape has changed based on meeting the needs of a growing society.</td>
<td>0.2759</td>
<td>0.0000</td>
<td>0.88223</td>
<td>3.4</td>
<td>10.3</td>
<td>48.3</td>
<td>31.0</td>
<td>6.9</td>
</tr>
</tbody>
</table>

- In the 1800s, timber was stripped off the landscape along with furs from animals. The late 1800s through the 1900s were agricultural based plus the manufacture of heavy machinery for support of farms and a war machine. Farms and manufacturing are diminishing and homes are replacing them in the countryside as well as urban areas.

- Provides historical context for land use patterns; provides the "why".

- The landscape is change by other factors like floods. Society does not
need to grow to change the landscape. The impact of humans on the landscape is found in other statements.

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<th>% SA</th>
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</thead>
<tbody>
<tr>
<td>27)</td>
<td>Land supports plant life, which is essential for human life.</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1.16496</td>
<td>10.3</td>
<td>20.7</td>
<td>41.4</td>
<td>13.8</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td>• Without understanding and appreciating the ecosystem, how can one even begin to plan for land use? If planners want to make a difference, they need to understand and appreciate the living landscape. Otherwise their land use plans could result in a merely cosmetic application like the traditional grass planted berms with three non-native trees planted in a row in front of a commercial development.</td>
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<tr>
<td></td>
<td>• Include here so that students understand how important it is to protect land and natural services and fertility of land. While this is a social studies program, including interdisciplinary links is essential!</td>
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<td></td>
<td>• I'd agree, this could be covered under a biology/science topic.</td>
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</tr>
<tr>
<td>28)</td>
<td>Prime agricultural land is critical for food</td>
<td>1.0357</td>
<td>1.0000</td>
<td>0.63725</td>
<td>0.0</td>
<td>0.0</td>
<td>17.9</td>
<td>60.7</td>
<td>21.4</td>
</tr>
</tbody>
</table>
production. (N=28)

- Many farm fields have been washed out from years of use. These old fields and hydroponics provide nutrient poor food sources. Many fish species that are now farmed do not provide the same nutrient levels of stream and lake raised fish. Natural and nature's methods provide more nutritional options.
- Prime farmland needs protection from development through land use controls.
- Kids should understand the value of prime agricultural land to food production (basic needs of humans) and therefore why development on such land should be discouraged.
- Statement has some problems - lots of foods grown on land that is not prime farmland. It appears that the reason for including such a statement is to get at the issue of preserving prime farmland and perhaps the statement should simply state this. Although it is preferable to preserve prime farmland because of its productivity, it is not necessarily "critical" for food production given current cultivation practices and fertilizers. By
preserving prime farmland, use of other resources, such as fertilizers or more fuel for special cultivation practices, would not be necessary. It would be great if one could say these lands are critical; unfortunately, it appears to be a far more complex issue.

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<th>Standard deviation</th>
<th>% SD-2</th>
<th>%D-1</th>
<th>%N 0</th>
<th>%A 1</th>
<th>%SA 2</th>
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</thead>
<tbody>
<tr>
<td>29)</td>
<td>Recreational areas are a part of a community’s land uses.</td>
<td>0.7586</td>
<td>1.0000</td>
<td>0.78627</td>
<td>3.4</td>
<td>0.0</td>
<td>24.1</td>
<td>62.1</td>
<td>10.3</td>
</tr>
</tbody>
</table>
30) Open space can perform many valuable functions.

- Important and fundamental – Open space does not necessarily need to be available for the public. Private country clubs break up the intense land development pressures, but are not available to the general public.
- These areas can perform stormwater functions, wildlife habitat, recreation, visual appeal, and add value to a community.
- Some people define farmland as open space; which would not be a public space. Is farmland "undeveloped"?
- I think students should understand what those functions are, as well, of course. The idea of livable cities could also be discussed.

31) Natural areas are being converted to agricultural, recreational, residential, and commercial purposes.

- Of course this is happening at blazing speed.
- What is “natural”?
- The loss of open space, habitat loss, and critical natural areas are experiencing many development pressures and some open spaces need
### Concept Mean Median Standard deviation % SD %D %N %A %SA

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<tr>
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<th>% SD</th>
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<th>%N</th>
<th>%A</th>
<th>%SA</th>
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<tbody>
<tr>
<td>32)</td>
<td>Historic preservation safeguards physical links to the past.</td>
<td>0.5862</td>
<td>1.0000</td>
<td>0.98261</td>
<td>3.4</td>
<td>10.3</td>
<td>24.1</td>
<td>48.3</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td>• I believe it is important for a community to know where it came from. Just like the blue shirt (art) episode in Milwaukee. This area’s wealth was founded on blue-collar work and should not be something to be ashamed of. Various homes and buildings are our link to the past.</td>
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</tr>
<tr>
<td></td>
<td>• Emphasizes value of historic preservation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Important, since it is irreversible once lost – Can be preserved through land use controls.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• People need a sense of history – as it defines the future.</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>33)</td>
<td>Historically significant buildings and landscapes help make a community unique and give it a sense of place and community character.</td>
<td>1.2759</td>
<td>1.0000</td>
<td>0.64899</td>
<td>0.0</td>
<td>0.0</td>
<td>10.3</td>
<td>51.7</td>
<td>37.9</td>
</tr>
<tr>
<td></td>
<td>• This is a discussion that should occur in some other place or class – not land use discussions.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Visit many cities and part of any tour</td>
<td></td>
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is to show off their old buildings.

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<th>Standard deviation</th>
<th>% SD</th>
<th>% D</th>
<th>% N</th>
<th>% A</th>
<th>% SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>34)</td>
<td>Economic development is a chief concern among communities, which involves creating a more stable tax base, jobs, and income.</td>
<td>1.0690</td>
<td>1.0000</td>
<td>0.65088</td>
<td>0.0</td>
<td>3.4</td>
<td>6.9</td>
<td>69.0</td>
<td>20.7</td>
</tr>
<tr>
<td></td>
<td>• Important and fundamental issue in regards to basic civic learning.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• I don’t think this description does economic development justice. It may not be a chief concern among all communities, and there are certainly alternative descriptions and methods of economic development besides those listed.</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35)</td>
<td>Downtowns are changing in response to changing economic factors.</td>
<td>0.5517</td>
<td>0.0000</td>
<td>0.86957</td>
<td>0.0</td>
<td>6.9</td>
<td>48.3</td>
<td>27.6</td>
<td>17.2</td>
</tr>
</tbody>
</table>
downtown family owned businesses dry up. This transfer's wealth out of the area from the people to Wal-Mart.

- Important, not just downtowns, but any commercial district changes for good or bad as a result of changing economic factors.
- I agree that it is downtowns AND the surrounding areas that are changing.
- But I think it is important to be clear about the economic forces that are shaping these changes. It's not just bad taste or immorality.

<table>
<thead>
<tr>
<th>36) Housing is often a land use issue, which includes housing options, housing affordability, and housing availability. (N=28)</th>
<th>1.1786</th>
<th>1.0000</th>
<th>0.81892</th>
<th>3.6</th>
<th>0.0</th>
<th>3.6</th>
<th>60.7</th>
<th>32.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>- We need various home types for young to old, lower to higher economic, and lifestyle habits.</td>
<td></td>
<td></td>
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<td>- Important for kids to realize houses aren't &quot;just built&quot; but serve a community need.</td>
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<td>- Land use planning needs to provide housing for all the community's citizens.</td>
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<td>- I think that introducing the range of issues included under the rubric of &quot;housing&quot; is what is so important.</td>
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<td>37)</td>
<td>Shelter is a basic human need.</td>
<td>0.2759</td>
<td>0.0000</td>
<td>1.03152</td>
<td>3.4</td>
<td>17.2</td>
<td>41.4</td>
<td>24.1</td>
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<td></td>
<td>- I sold my first home to a person that was buying for the first time.</td>
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<td></td>
<td>That was eight years ago, and I still see and talk to that person</td>
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<td>today. He has taken great pride in his home ownership as I have.</td>
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<td>It strengthens a citizen’s bond with the community at large since</td>
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<td></td>
<td>they are making direct payments in support of the municipality.</td>
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<td></td>
<td>And to survive, we all need a place to live whether it is under</td>
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<td></td>
<td>a bridge, a box, or a nice home or apartment.</td>
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<td></td>
<td>- Kids need to know there are housing needs beyond they type they</td>
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<td>occupy.</td>
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<td></td>
<td>- Again way too basic.</td>
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<td></td>
<td>- Critical in understanding the need for balance in land use</td>
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<td></td>
<td>decision-making.</td>
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<td>38)</td>
<td>Society needs a variety of housing types to shelter people with</td>
<td>1.3929</td>
<td>1.5000</td>
<td>0.68526</td>
<td>0.0</td>
<td>0.0</td>
<td>10.7</td>
<td>38.3</td>
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<tr>
<td></td>
<td>diverse social, physical, and economic needs. (N=28)</td>
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<td></td>
<td>- Important and fundamental and often overlooked by communities and</td>
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<td>residents who only want people of the same economic class.</td>
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</table>
- Fundamental role of community planning.
- If only planning commissions would understand this.

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<th>Standard deviation</th>
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<th>% N 0</th>
<th>% A 1</th>
<th>%SA 2</th>
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</table>
| 39)    | Within the Bill of Rights, there are several amendments that are important to land use (for example, the 5th, 10th, and the 14th.)  
- An important concept but perhaps might be more usefully addressed when studying the Bill of Rights in History or Civics (if they still teach Civics).  
- I am torn. Of course it is important, but I really was concerned about even high school students being able in the stretch of a short lesson, to really understand this.  
- This is a good example of the kind of information that should be shared with students and they should be expected to grasp. The world is a complex place, and students need to understand how complex issues like those addressed in these amendments were addressed by our forefathers. | 1.3103 | 1.0000 | 0.71231            | 0.0      | 3.4    | 3.4   | 51.7   | 41.4   |
| 40)    | Public interests and private property rights                                                                                                                                                    | 1.3448 | 2.0000 | 0.81398            | 0.0      | 3.4    | 10.3  | 34.5   | 51.7   |
are protected under the constitution.

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<tr>
<td>41)</td>
<td>The due process and equal protection concepts are designed to achieve fairness in how governments treat all citizens and a technical correctness in following procedures.</td>
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<td></td>
<td>• Basic concept that needs to be understood. This will help people understand the planning process and accept decisions made through that process.</td>
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<td></td>
<td>• Agree that this is a civics issue but is clearly an important enough concept to the whole issue of land use to be given a score of &quot;I&quot; so that it is discussed in the context of land use.</td>
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<td></td>
<td>• I still object to the way this characterizes due process. Due process arises from the Bill of Rights and is intended to protect the individual from government and/or the majority.</td>
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<td>42)</td>
<td>There are a number of federal laws that influence land use policies at various levels of government.</td>
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<td></td>
<td>• Federal laws are constantly under</td>
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attack by the current administration.

- Law and the courts have defined how land use decisions are implemented.

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<th>% A 2</th>
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<tbody>
<tr>
<td>43)</td>
<td>Federal and state courts cases influence land use decisions.</td>
<td>1.1034</td>
<td>1.0000</td>
<td>0.81700</td>
<td>0.0</td>
<td>3.4</td>
<td>17.2</td>
<td>44.8</td>
<td>34.5</td>
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<td></td>
<td>• Landmark cases regarding various zoning laws have played out in the courts over the years in support of rules for zoning. Laws will be continued to be challenged every year.</td>
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<td></td>
<td>• May be more for 7-12 grades, but important to realize interpretation of laws often require a court decision; not always black and white.</td>
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<td>44)</td>
<td>Local governments have the power to regulate land use.</td>
<td>1.6552</td>
<td>2.0000</td>
<td>0.55265</td>
<td>0.0</td>
<td>0.0</td>
<td>3.4</td>
<td>27.6</td>
<td>69.0</td>
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<td></td>
<td>• This has been proven many times in court challenges.</td>
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<td></td>
<td>• More than just zoning...subdivision, land division, comprehensive planning, master planning, TIF districts, etc.</td>
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<td>• This is critical to understanding and realizing that people do have local control – it's not all “big” government that has a say.</td>
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• Important to understand the mechanics of land use decision-making process.
• Pretty basic and necessary concept to understand the rest of this stuff.

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<tr>
<td>45)</td>
<td>Although faced with similar issues, each state in the USA has its own set of laws that shape land use.</td>
<td>1.0690</td>
<td>1.0000</td>
<td>0.59348</td>
<td>0.0</td>
<td>0.0</td>
<td>13.8</td>
<td>65.5</td>
<td>20.7</td>
</tr>
<tr>
<td>46)</td>
<td>Public participation is an important part in making land use decisions.</td>
<td>1.7241</td>
<td>2.0000</td>
<td>0.59140</td>
<td>0.0</td>
<td>0.0</td>
<td>6.9</td>
<td>13.8</td>
<td>79.3</td>
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</table>
  • Important, but not fundamental – I believe this issue is waited too heavily.
  • Lack of public participation on the front end will likely lead to public dissent on the back end.
  • Informed citizens are important in land use decision-making.
  • Public Participation is especially important to the planning process. Land use decisions later become very ministerial. However, that doesn’t mean that the role of the public should stop.
  • I’m seeing this in action right now and yes, it is very important in making land use decisions.
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<tr>
<td>47)</td>
<td>Various levels of Wisconsin’s government all play a part in regulating land use decisions. Important for kids to realize that all levels of government have some regulation roles.</td>
<td>1.2414</td>
<td>1.0000</td>
<td>0.57664</td>
<td>0.0</td>
<td>0.0</td>
<td>6.9</td>
<td>62.1</td>
<td>31.0</td>
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<td>48)</td>
<td>The Wisconsin Comprehensive Planning Law (Act 9) established a new expanded role for planning in Wisconsin. Not applicable outside of Wisconsin. K-12 students may move away after graduation. I really think that this is too focused on one particular law. The curriculum should review whatever enabling statute is currently in effect (or enacted).</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1.00000</td>
<td>10.3</td>
<td>13.8</td>
<td>44.8</td>
<td>27.6</td>
<td>3.4</td>
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<td>49)</td>
<td>Land use patterns can be efficient or inefficient depending on the context of concern. Subjective terms. I think this is fundamental to understanding some of the major benefits of planning. Should be presented with relevant supporting facts.</td>
<td>0.8966</td>
<td>1.0000</td>
<td>0.67320</td>
<td>0.0</td>
<td>3.4</td>
<td>17.2</td>
<td>65.5</td>
<td>13.8</td>
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<td>Number</td>
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<tr>
<td>50)</td>
<td>Land use decisions affect the cost of government infrastructure.</td>
<td>1.5862</td>
<td>2.0000</td>
<td>0.50123</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>41.4</td>
<td>58.6</td>
</tr>
<tr>
<td></td>
<td>• Especially for 9-12 grades, important to know land use decisions affect infrastructure costs and thus tax rates; they will soon (hopefully) be taxpayers.</td>
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<td>• Compact urban development provides savings in new infrastructure.</td>
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<td></td>
<td>• It is equally important to recognize that land use decisions can have unintended negative land use consequences. In other words, the concept of the balloon; if you squeeze it in one place, it bulges somewhere else.</td>
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<td>51)</td>
<td>Scattered development patterns can lead to increased dependence on automobiles.</td>
<td>1.1379</td>
<td>1.0000</td>
<td>1.05979</td>
<td>3.4</td>
<td>6.9</td>
<td>6.9</td>
<td>37.9</td>
<td>44.8</td>
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<td></td>
<td>• While I agree, this concept is social planning, not land use material.</td>
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<td>• Necessary to state consequences of increased automobile dependence too.</td>
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<td></td>
<td>• The concept simply states a fact, it's not a value judgment – kids need to understand the link between cars and scattered development.</td>
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• We are not stating that someone who lives in a scattered development is worst – but rather that it changes the transportation dynamic – socially and financially.

• RE: comment regarding teaching children that scattered development is "worse" - agreed; however, if there are verifiable facts and figures that there are added costs for public services, added costs for transportation corridors, added inconveniences for commuters, increased pollution, etc., it seems reasonable to teach children these facts and allow them to draw their own conclusions.

• It's not a matter of who is better. If presented with relevant supporting facts, this concept can help make the subject of land use come to life – real situations.

• But I want to express agreement that care needs to be taken so that kids who live in scattered developments don't get stigmatized as being “bad.”

| 52) | Land use decisions shape demand for transportation and transportation investment decisions shape the future | 1.5862 | 2.0000 | 0.56803 | 0.0 | 0.0 | 3.4 | 34.5 | 62.1 |
pattern of land use.

- At first this seems self-evident but kids may not have even thought about the impact that roads and the needs of transportation have on the world around them.
- Transportation infrastructure has played an historic role in land use (e.g., most major cities are on water bodies because of transportation access).
- This should be a fundamental point of an early 21st curriculum on land use in the US.

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<th>% A 1</th>
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<tbody>
<tr>
<td>53)</td>
<td>Transportation is multi-modal — there are multiple modes of transportation.</td>
<td>0.7586</td>
<td>1.0000</td>
<td>0.83045</td>
<td>0.0</td>
<td>6.9</td>
<td>27.6</td>
<td>48.3</td>
<td>17.2</td>
</tr>
<tr>
<td>54)</td>
<td>Surface and groundwater quality and quantity are affected by land use decisions.</td>
<td>1.5172</td>
<td>2.0000</td>
<td>0.68768</td>
<td>0.0</td>
<td>3.4</td>
<td>0.0</td>
<td>37.9</td>
<td>58.6</td>
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- Vital natural resource.
- Groundwater quantity will be an increasingly important concept to understand in the coming years.
- This is a critical natural resource and public health issue that is directly affected by land use.
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</table>
| 55)    | Air and surface water are public goods and are “owned” by the public in trust in Wisconsin.  
• Unlike west of the Mississippi, where water rights can be bought and sold and battled in the courts.  
• Gives relevance to regulating land uses that affect air and surface water. | 1.1379 | 1.0000 | 0.74278 | 0.0 | 0.0 | 20.7 | 44.8 | 34.5 |
| 56)    | The “tragedy of the commons” occurs when the cumulative effects of many people trying to use a common-property resource eventually exhausts or ruins it.  
• This is an extremely important concept, and I actually think it would be very easy for even fairly young children to understand if well taught.  
• This is at the crux of many environmental and planning issues. Please include it.  
• I agree that it may be over the heads of high school students.  
• AVOID Simplistic explanations of complex topics!!! | 0.6897 | 1.0000 | 1.00369 | 6.9 | 0.0 | 27.6 | 48.3 | 17.2 |
| 57)    | The point where land meets water is an important and fragile area. | 1.3045 | 1.0000 | 0.82301 | 0.0 | 6.9 | 10.3 | 55.2 | 27.6 |
- This is the nursery area for the water and in many cases subject to the most abuse.
- Important, but not more critical than other potential pollution sources.

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<tbody>
<tr>
<td>58)</td>
<td>Land along the shores of Wisconsin’s lakes and rivers are increasingly being developed due to consumer demand and are of great monetary value.</td>
<td>0.4138</td>
<td>0.0000</td>
<td>0.86674</td>
<td>3.4</td>
<td>6.9</td>
<td>41.4</td>
<td>41.4</td>
<td>6.9</td>
</tr>
<tr>
<td></td>
<td>Agree that this is an issue, not a concept – Teach this in a real estate class not a land use class.</td>
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<td></td>
<td>Development of shorelines is increasing, as is the monetary value of the land in those locations.</td>
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<tr>
<td>59)</td>
<td>Growth management is a land use planning strategy. (N=28)</td>
<td>0.6071</td>
<td>1.0000</td>
<td>0.87514</td>
<td>3.6</td>
<td>3.6</td>
<td>32.1</td>
<td>50.0</td>
<td>10.7</td>
</tr>
<tr>
<td></td>
<td>Important and fundamental for high middle and high school children.</td>
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<td></td>
<td>It can be perceived negatively. Some people do not believe we need more growth.</td>
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</tr>
<tr>
<td>60)</td>
<td>Growth management is a commitment to plan carefully for the growth that comes to an area so as to achieve a responsible</td>
<td>1.1071</td>
<td>1.0000</td>
<td>0.87514</td>
<td>3.6</td>
<td>0.0</td>
<td>10.7</td>
<td>53.6</td>
<td>32.1</td>
</tr>
</tbody>
</table>
balance between the protection of natural systems (land, air, water) and the development required to support growth in the residential, commercial, and retail areas. (N=28)

- I disagree with this issue, growth management is not a commitment to plan, just a commitment to limit growth. This is how non-planners "plan".

<table>
<thead>
<tr>
<th>Number</th>
<th>Concept</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>% SD-2</th>
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<th>%N0</th>
<th>%A1</th>
<th>%SA2</th>
</tr>
</thead>
<tbody>
<tr>
<td>61)</td>
<td>Individual actions may seem insignificant, but unmanaged growth is the result of cumulative impacts of individual decisions. Managed growth is also the result of cumulative impacts of individual decisions.</td>
<td>1.0690</td>
<td>1.0000</td>
<td>1.03272</td>
<td>3.4</td>
<td>3.4</td>
<td>17.2</td>
<td>34.5</td>
<td>41.4</td>
</tr>
<tr>
<td>62)</td>
<td>Land management in the future will be a chief concern, due to the increasing population and finite amount of land on the earth. (N=28) Even in areas where we think water is plenty, projections with current use will exceed regeneration in Waukesha County in about 10 years. One reason there is so much vacant land around</td>
<td>0.7500</td>
<td>1.0000</td>
<td>1.17458</td>
<td>7.1</td>
<td>7.1</td>
<td>17.9</td>
<td>39.3</td>
<td>28.6</td>
</tr>
</tbody>
</table>
the USA is there is no easy water source. With no water, habitation becomes near to impossible.

- Basing the need for land management on the percent of land that is already developed is a very simplistic viewpoint that doesn't consider quality of life, air & water quality or a host of other issues.
- Land management in an urban planning sense or in a conservation sense? It is the finite amount of biologically productive land that is critical to survival of all species.

<table>
<thead>
<tr>
<th>Land use regulations (both good and bad) reflect the will of the public – at least those who participate in the local government process.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not if you work days and most public meetings are held during that time. Attendance and participation is next to impossible unless you belong to an interest group.</td>
</tr>
<tr>
<td>Imparts importance to be an active citizen, which can be emphasized from K through 12.</td>
</tr>
<tr>
<td>And those who vote – this is a prime example to use to explain to kids how voting and otherwise being involved in</td>
</tr>
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</table>
their communities is so important in so many ways.

- Regulations are also a reflection of private power and money!

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<th>Standard deviation</th>
<th>% SD -2</th>
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<th>%N 0</th>
<th>%A 1</th>
<th>%SA 2</th>
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</thead>
<tbody>
<tr>
<td>64)</td>
<td>Tools for implementation of land use plans include regulations and provision of services, incentives, and educational programs. If we are going to teach what a plan is, then we need to teach how to implement a plan.</td>
<td>1.2414</td>
<td>1.0000</td>
<td>0.73946</td>
<td>0.0</td>
<td>3.4</td>
<td>6.9</td>
<td>51.7</td>
<td>37.9</td>
</tr>
<tr>
<td>65)</td>
<td>The way in which land is used directly affects natural resources (local, regional, and global). Fundamental concept. And thus affects quality of life.</td>
<td>1.2414</td>
<td>1.0000</td>
<td>0.78627</td>
<td>0.0</td>
<td>3.4</td>
<td>10.3</td>
<td>44.8</td>
<td>41.4</td>
</tr>
<tr>
<td>66)</td>
<td>The way in which our physical environment is planned (or not planned) can greatly influence the quality of natural resources and our lives. Too Vague. A planned environment can lower future costs of stormwater and flood protection and further protect water quality and the waterway on the</td>
<td>0.9310</td>
<td>1.0000</td>
<td>0.99753</td>
<td>3.4</td>
<td>3.4</td>
<td>20.7</td>
<td>41.4</td>
<td>31.0</td>
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</table>
receiving end of our urban stew. Attractive open areas and natural areas can add 10-40% to the value of a property.

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<th>% D -1</th>
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<th>% SA 2</th>
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</thead>
<tbody>
<tr>
<td>67)</td>
<td>Clean air, clean water, and more efficient and compact development are all at least partially based on sustainable land use.</td>
<td>0.6207</td>
<td>1.0000</td>
<td>1.29322</td>
<td>10.3</td>
<td>10.3</td>
<td>13.8</td>
<td>37.9</td>
<td>27.6</td>
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<td></td>
<td>• There are acceptable and sustainable practices and designs with application of the LEED rating system.</td>
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<td></td>
<td>• I agree – sustainability is another complex concept.</td>
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<td>68)</td>
<td>Because the majority of the food, water, fiber, and space that supports humans come from the land, land is central in considering the quality of the human future.</td>
<td>0.6897</td>
<td>1.0000</td>
<td>1.03866</td>
<td>3.4</td>
<td>10.3</td>
<td>20.7</td>
<td>44.8</td>
<td>20.7</td>
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<td></td>
<td>• Is it safe to say that kids today see technology as the future? – they also need to remember how important our link to natural resources is – that not everything is electronic and instant. (If I am selling kids short by assuming this about them, I apologize).</td>
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<tr>
<td></td>
<td>• What food, water, fiber and space doesn’t come from land?</td>
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<td>%D</td>
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<td>%SA</td>
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<tr>
<td>69)</td>
<td>Citizens elect individuals to represent them in the government that who make the laws and decide which policies will be followed.</td>
<td>0.6207</td>
<td>1.0000</td>
<td>1.08278</td>
<td>6.9</td>
<td>3.4</td>
<td>31.0</td>
<td>37.9</td>
<td>20.7</td>
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<td></td>
<td>I would think (hope?) that representative democracy as a subject is taught elsewhere.</td>
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<td></td>
<td>Important for people to understand this concept. I see too many people who seem to forget or not understand that elected officials make the laws as representatives of the people and public administrators, including planners, implement the laws. It is crucial to planning because it gives legitimacy to planning regulations made by elected individuals.</td>
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<td></td>
<td>Land Use includes a lot of civics-and it would be a mistake to not include some of these issues in the context of land use decision making.</td>
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<tr>
<td>70)</td>
<td>The public cannot act effectively in the realm of land use unless they are well informed about the general process and proposed future actions.</td>
<td>0.4138</td>
<td>1.0000</td>
<td>1.18072</td>
<td>6.9</td>
<td>17.2</td>
<td>20.7</td>
<td>37.9</td>
<td>17.2</td>
</tr>
</tbody>
</table>
informed people, as are many pro-
development organizations.

- Supports public involvement, both to
  be promoted by “regulators” and to
  be made a personal responsibility;
  good concept for positive citizenry K-
  12.
- Key word, “effective”. And true in
  any general process.

71) Citizens need to understand the
relationship between natural resources and
economic development, land use,
community facilities, and transportation.
- I just returned from a visit to Kentucky
where it could be argued the majority
of their citizens do not yet understand
this concept either, so I think it
important that Wisconsin kids realize
it. I don’t mean to malign; just
emphasize I had quite a bit of a
cultural and environmental wake-up
call.

72) Public involvement is essential for
successful planning – a plan will generally
get broad support if all parties are
involved in the planning process.
- Amen.
<table>
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<th>Number</th>
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<th>Standard deviation</th>
<th>% SD -2</th>
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<th>%N 0</th>
<th>%A 1</th>
<th>%SA 2</th>
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</thead>
<tbody>
<tr>
<td>73)</td>
<td>Community members will feel more ownership of a plan if they play a role in its development.</td>
<td>1.3793</td>
<td>2.0000</td>
<td>0.86246</td>
<td>3.4</td>
<td>0.0</td>
<td>3.4</td>
<td>41.4</td>
<td>51.7</td>
</tr>
<tr>
<td></td>
<td>• “Feeling ownership” adds the whole dimension of psychology to the discussion. I think we should focus on the physical, life and social sciences.</td>
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<tr>
<td></td>
<td>• Definitely.</td>
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<tr>
<td>74)</td>
<td>Visioning is a participatory tool utilized in many communities, which is a process by which a community envisions the future it wants and plans how to achieve it.</td>
<td>0.4483</td>
<td>0.0000</td>
<td>0.73612</td>
<td>0.0</td>
<td>6.9</td>
<td>48.3</td>
<td>37.9</td>
<td>6.9</td>
</tr>
<tr>
<td></td>
<td>• The idea of identifying a desired future is great/followed by planning, but this statement seems too specific; other tools/methods can be used.</td>
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<tr>
<td></td>
<td>• While visioning is only one tool, it is essential to have a vision of the future that we want to live in if we are to achieve that future (rather than simply complain about the present).</td>
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<tr>
<td>75)</td>
<td>Citizens are generally apathetic to land use decisions until or unless they are directly affected.</td>
<td>0.5862</td>
<td>1.0000</td>
<td>1.01831</td>
<td>3.4</td>
<td>10.3</td>
<td>27.6</td>
<td>41.4</td>
<td>17.2</td>
</tr>
<tr>
<td></td>
<td>• Citizens are concerned in their own</td>
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neighborhood. Opportunities for evening meetings could make a difference.

- Provides context as to why some things have been allowed to happen or not happen.
- They may not be apathetic, but they are more likely to participate once they are directly affected.
- Again, it's best not to pick on "Citizens." It might be more important to say that folks are not inclined to voice a public opinion at a meeting about land use decisions. However it is a misconception to believe people don't care about an issue unless it is directly affecting them. Everyone has an opinion.
- Why even put this idea in a kid's head?
- Agree apathy is endemic to modern culture.

<table>
<thead>
<tr>
<th>76)</th>
<th>Citizens have a responsibility to become informed and are a valuable source of information.</th>
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<td></td>
<td>Municipalities need to do a better job of involving their citizens in the process.</td>
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<td>Personal responsibility is a very</td>
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</table>
important concept for youth to embrace.

- Planners also have a responsibility to inform the public.

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<th>Number</th>
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<th>Median</th>
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<th>% N 0</th>
<th>% A 1</th>
<th>% SA 2</th>
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</thead>
<tbody>
<tr>
<td>77)</td>
<td>Long-term planning is central to achieving better land use and growth management.</td>
<td>0.9310</td>
<td>1.0000</td>
<td>0.96106</td>
<td>3.4</td>
<td>6.9</td>
<td>6.9</td>
<td>58.6</td>
<td>24.1</td>
</tr>
<tr>
<td></td>
<td>- Long term planning is crucial, but I would prefer to see other words than “better” or “growth management”.</td>
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<tr>
<td>78)</td>
<td>Planning involves the careful study and analysis of current land use needs and the anticipation of future needs—planning helps create more predictable, efficient, and sustainable land use.</td>
<td>1.1034</td>
<td>1.0000</td>
<td>0.77205</td>
<td>0.0</td>
<td>3.4</td>
<td>13.8</td>
<td>51.7</td>
<td>31.0</td>
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<td></td>
<td>- Many communities have ‘planned’ their way into unsustainable land use. This statement may be misleading.</td>
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<tr>
<td>79)</td>
<td>A comprehensive plan is a representation of what a community wants to be in the future—it is an orderly, open approach to determining local needs, setting goals and priorities, and developing a guide for action. (N=28)</td>
<td>1.0357</td>
<td>1.0000</td>
<td>0.88117</td>
<td>0.0</td>
<td>7.1</td>
<td>14.3</td>
<td>46.4</td>
<td>32.1</td>
</tr>
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</table>
|        | - A comprehensive plan is what the plan commission wants the community to
be in the future – It does not necessarily represent “what a community wants”.

- The concept of a comprehensive plan may be, but the reality is often different.

<table>
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<tr>
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<th>Standard deviation</th>
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<th>% N</th>
<th>% A</th>
<th>% SA</th>
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<tbody>
<tr>
<td>80)</td>
<td>A comprehensive plan provides a context for important future decisions for a community. Good idea to convey what a comprehensive plan is.</td>
<td>1.3448</td>
<td>1.0000</td>
<td>0.66953</td>
<td>0.0</td>
<td>3.4</td>
<td>0.0</td>
<td>55.2</td>
<td>41.4</td>
</tr>
<tr>
<td>81)</td>
<td>Land use planning is a dynamic process that includes planning, implementation, enforcement, and evaluation. (N=27) Important to emphasize plans are not set in stone, nor should they be; it never ends. Basic and fundamental.</td>
<td>1.1481</td>
<td>1.0000</td>
<td>0.90739</td>
<td>3.7</td>
<td>3.7</td>
<td>0.0</td>
<td>59.3</td>
<td>33.3</td>
</tr>
<tr>
<td>82)</td>
<td>Land use planning is one part of a comprehensive plan that looks at connections between various components. Specific uses can be listed with a plan as well as areas that need protection, future stormwater parks, floodplains, wetlands, recreation, etc.</td>
<td>0.5172</td>
<td>1.0000</td>
<td>0.94946</td>
<td>3.4</td>
<td>10.3</td>
<td>27.6</td>
<td>48.3</td>
<td>10.3</td>
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<td>Number</td>
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<tr>
<td>83)</td>
<td>Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.</td>
<td>0.8276</td>
<td>1.0000</td>
<td>1.16708</td>
<td>6.9</td>
<td>6.9</td>
<td>13.8</td>
<td>41.4</td>
<td>31.0</td>
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<tr>
<td></td>
<td>This is perhaps the best statement of the whole bunch. It very simply and succinctly states a goal that seems reasonable for all comprehensive plans.</td>
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<td></td>
<td>Sustainability is a troublesome word. Concept is better addressed by talking about fiscal efficiencies/inefficiencies, transportation choices, impacts to natural resources, etc.</td>
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<tr>
<td>84)</td>
<td>Land use planning can play a role in improving the sustainability of communities, due to planning being related to how, where and when human development occurs.</td>
<td>0.8276</td>
<td>1.0000</td>
<td>1.07135</td>
<td>6.9</td>
<td>3.4</td>
<td>13.8</td>
<td>51.7</td>
<td>24.1</td>
</tr>
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<td></td>
<td>Sustainability is an important idea, and planning really should be about the sustainable management of community resources.</td>
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<td>Concept is important – essential to the existence/practice of planning.</td>
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Appendix N

Finalized Version of Land Use Environmental Education Conceptual Framework
How do we use land?

Land use (general)
1. Land uses exist within cultural, economic, physical, environmental, and social contexts.
2. Historical perspectives on land use provide an understanding of how land use has been important to humans throughout time.
3. Demographic, social, economic, and technology changes and trends affect the amount of land used and how it is used.

Land
1. Land supplies humans with most of the things they need for life.
2. Land is a finite natural resource that exists in diverse forms and can have multiple uses.
3. People’s decisions and corresponding actions affect the way the landscape changes over time.

Land ownership
1. Land and land ownership mean different things to various cultures within Wisconsin, the USA, and the world.
2. Land is owned by the public (through the government), private individuals and groups, and tribal governments in the USA.
3. The government has extensive powers over the use of private land: can exercise eminent domain to take private land for “public purposes”, taxation on land (real estate), police power (most common is zoning), and power of the public purse – how government spends funds for public purposes.
4. Land ownership can be seen as a “bundle of rights”; any single right may be separated from the bundle and sold, regulated, or given away.
5. The government can limit property rights to protect the safety of the public or its health, morals, or welfare – the right to use or develop property is not unlimited.

History
1. People have been dependent on the land since the first humans lived on earth and humans have altered the land throughout history.
2. Transportation of raw materials influenced the placement of settlements/cities.
3. Land has provided natural resources that have helped, and continue to help, build the USA.

Various uses of land
1. Agricultural land is critical for food production.
2. Recreational areas are a part of a community’s land uses.
3. Open space can perform many valuable functions.
4. Natural areas are being converted to agricultural, recreational, residential, and commercial purposes.
5. Economic development is a primary concern among communities, which will have subsequent land use impacts.
6. Commercial areas change in response to economic factors.
7. Housing is a land use issue that is concerned with providing an adequate supply of affordable housing options to shelter people with diverse social, physical, and economic backgrounds.
8. Historically significant buildings and landscapes help make a community unique and give it a sense of place and community character.

How are decisions made regarding land?

Amendments
1. Within the Bill of Rights, there are several amendments that are important to land use (for example, the 5th, 10th, and the 14th).
2. Public interests and private property rights are protected under the U.S. Constitution.
3. The concepts of due process and equal protection that stem from the U.S. Constitution, applies to land use decisions.

Federal laws and courts
1. Federal laws influence land use policies at various levels of government.
2. Federal and state courts cases influence land use decisions.

Local government
1. Local governments have the power to regulate land use.
2. Although faced with similar issues, each state in the USA has its own set of laws that shape land use.

3. Various levels of Wisconsin’s government all play a part in regulating land use decisions.

Land use decisions
1. Since many interests compete for limited available land, the challenge in deciding how land will be used is complex.

2. Land use planning and decisions require an analysis of many alternatives and points of view.

3. Trade-offs are involved in any land use decision (both positive and negative consequences).

4. Land use decisions are influenced by a variety of factors and values.

5. Since many interests compete for limited available land, the challenge in deciding how land will be used is complex.

6. Land use decisions involve the rights of ownership and individual and societal needs.

7. Land use decisions involve balancing public interests and private rights.

8. Public participation is an important part in making land use decisions.

What are the effects of land use decisions?

Land use patterns
1. Land use patterns can have varying levels of efficiency depending on the context.

Outcomes of land use decisions
1. Land use decisions affect the cost of government infrastructure.

2. Land use decisions affect everyone.

3. Land use decisions can change the physical landscape in fundamental ways.

4. The land use decisions in one community can affect neighboring communities - the effects of land use practices are often not contained by geographical or political boundaries.

Transportation
1. Scattered land use patterns can lead to increased dependence on automobiles.
2. Land use decisions shape demand for transportation and transportation investment decisions shape the future pattern of land use.

3. Transportation modes affect land use patterns and decisions.

"Commons"
1. Surface and groundwater quality and quantity are affected by land use decisions.

2. Air and surface water are public goods and are “owned” by the public in trust in Wisconsin.

How do we manage land?

Growth management
1. Growth management is a land use planning strategy committed to balancing natural systems with development.

2. Individual actions may seem insignificant, but unmanaged growth is the result of cumulative impacts of individual decisions.

Managing land use in the future
1. Population growth is a critical factor in land use planning.

2. Land is central in considering the future quality of life.

Land use and natural resources
1. The way in which land is used directly affects natural resources (local, regional, and global).

2. The way in which our physical environment is planned (or not planned) can greatly influence the quality of natural resources and our lives.

3. Sustainable land use strives for clean air and water and more efficient and compact development.

Public
1. An understanding of the relationship between natural resources, economic development, community facilities, and transportation is critical to land use decision-making.

2. Public involvement is essential for successful planning – a plan will generally get broad support if all parties are involved in the planning process.

3. Community members will feel more ownership of a plan if they play a role in its development.
4. Citizen involvement in land use decision-making is essential.

5. Citizens have a responsibility to become informed about land use issues and
decisions and are a valuable source of information.

Planning and the plan
1. Planning is central to long-term land use and growth management.

2. Planning involves the careful study and analysis of current land use needs and the
anticipation of future needs.

3. Planning can help create more predictable, efficient, and sustainable land use.

4. A comprehensive plan provides a context for and guides important future land use
decisions and actions for a community.

5. Land use planning is only one of the components of a comprehensive plan.

6. Land use planning is a dynamic process that includes planning, implementation,
enforcement, and evaluation.

7. Tools for implementation of land use plans include regulations and provision of
services, incentives, and educational programs.

Sustainability
1. Sustainable development is development that meets the needs of the present
without compromising the ability of future generations to meet their own needs.

2. Land use planning can play a role in improving the sustainability of communities,
due to planning addressing how, where and when human development occurs.