

Environmental Education in Wisconsin

Are we walking the talk?

A Profile of
Environmental Education
in Wisconsin K-12 Schools
Based on Statewide
Surveys and Assessments
of Students, Teachers,
Curriculum Coordinators,
and Principals

Funding and Support Provided by

Wisconsin Environmental Education Board
Wisconsin Department of Public Instruction
Wisconsin Center for Environmental Education
University of Wisconsin-Stevens Point College of Natural Resources
University of Wisconsin Cooperative Extension



Copyright © 1997 Wisconsin Center for Environmental Education

Environmental Education in Wisconsin

Are we walking the talk?

Substantial support for the development of this report and the research it is based upon was provided by the Wisconsin Environmental Education Board (WEEB)

For further information or to obtain copies of this report contact:

Wisconsin Center for Environmental Education
403 Learning Resources Center
University of Wisconsin-Stevens Point
Stevens Point, WI 54481

Phone: (715) 346-4950
Fax: (715) 346-3025
Email: wcee@uwsp.edu
WWW: <http://www.uwsp.edu/acad/wcee>



Acknowledgments

Many, many thanks are owed to all the people who have contributed to this project over the years. Besides the people listed on this and the next three pages, there were literally hundreds of teachers and administrators who willingly gave their time and expertise to make the studies this report is based upon possible. Unfortunately, space doesn't allow mention of every one of their names. Thank you all!

Research Coordinator and Report Author

Randy Champeau, Ph.D.

Professor of Resource Management, University of Wisconsin-Stevens Point
Director, Wisconsin Center for Environmental Education (WCEE)

Research Analysis, Report Production and Distribution

Phyllis Peri, M.S., Environmental Education Resource/Network Coordinator, WCEE

Report Design

Jeffrey W. Morin, sailorBOYpress, Stevens Point, WI

Draft Production

Carol Wake, WCEE Office Management

Contributing Authors and Researchers

Jennie Lane, M.S.

Coordinator of Curriculum Development, Wisconsin K-12 Energy Education Project, WCEE

Phyllis Peri, M.S.

Environmental Education Resource/Network Coordinator, WCEE

Anna Quale, M.S.

Middle School Teacher
Walker Middle School, Sturgeon Bay

Cathrine Rossow-Cunningham, M.S.

Environmental Education Specialist
Urbana, Illinois

Dan Sivek, Ph.D.

Associate Professor of Resource Management, University of Wisconsin-Stevens Point
Secondary Education Specialist, WCEE

Dennis Yockers, Ph.D.

Associate Professor of Resource Management, University of Wisconsin-Stevens Point
Elementary/Middle School Specialist, WCEE

Student and Teacher Assessment Advisory Council

Russ Allen, Ph.D., Research Consultant
Wisconsin Education Association Council
Madison

Dr. Randy Champeau, Director
Wisconsin Center for Environmental Education
College of Natural Resources
University of Wisconsin-Stevens Point

Dr. Claude Deck, District Administrator, retired
Onalaska Schools

Dave Engleson, EE Specialist, retired
Wisconsin Department of Public Instruction
Madison

Frank Evans, Ph. D.
Office of Educational Accountability
Wisconsin Department of Public Instruction
Madison

Judy Klippel, Director
Havenwoods Environmental Center
Milwaukee

Tim Kooi, former Administrator
Hartland-Lakeside Schools
Hartland

Jennie Lane, Coordinator of Curriculum
Development
Wisconsin K-12 Energy Education Project
Wisconsin Center for Environmental Education
College of Natural Resources
University of Wisconsin-Stevens Point

Don Lutz, Middle School Teacher
Marathon Middle School
Marathon City

Patricia Marinac
Science Program Leader
Appleton Area School District

Dr. Larry Miller, Chairperson, retired
Department of Education
Ripon College

Phyllis Peri, EE Resource/Network Coordinator
Wisconsin Center for Environmental Education
College of Natural Resources
University of Wisconsin-Stevens Point

Dr. Jay Price
Education Research
School of Education
University of Wisconsin-Stevens Point

Anna Quale, Middle School Teacher
Walker Middle School
Sturgeon Bay

Dr. Dan Sivek, Secondary Education Specialist
Wisconsin Center for Environmental Education
College of Natural Resources
University of Wisconsin-Stevens Point

Tom Stefonek, Ph.D., Director
Bureau of Achievement Testing
Wisconsin Department of Public Instruction
Madison

Dr. Richard Wilke, Associate Dean
College of Natural Resources
University of Wisconsin-Stevens Point

Dr. Dennis Yockers, Elementary/Middle School
Specialist
Wisconsin Center for Environmental Education
College of Natural Resources
University of Wisconsin-Stevens Point

Administrator Assessment Advisory Council

Emery Babcock, Assistant Superintendent of
Curriculum and Instruction
School District of Stevens Point

Kenneth Camlek, Principal
Rosholt Elementary School

Dr. Randy Champeau, Director
Wisconsin Center for Environmental Education
College of Natural Resources
University of Wisconsin-Stevens Point

Dr. Claude Deck, District Administrator, retired
School District of Onalaska

John Doyle, Principal, retired
Cuba City High School

Monte Hottmann, District Administrator
School District of Cambridge

Gary Loertscher, P-6 Principal
P-12 Director of Instruction
School District of Belleville

Dr. Corky McReynolds, Director
Treehaven Field Station
College of Natural Resources
University of Wisconsin-Stevens Point

Lois Meinking, Principal
West Side School
Mauston

Ann Quale, Middle School Teacher
Walker Middle School
Sturgeon Bay

Dr. Leslie Owen Wilson, Associate Professor of
Education
College of Professional Studies
University of Wisconsin-Stevens Point

Jim Yeakey, Principal, retired
Franklin Middle School
Shawano

Dr. Dennis Yockers, Elementary/Middle
School Specialist
Wisconsin Center for Environmental Education
College of Natural Resources
University of Wisconsin-Stevens Point

About the Wisconsin Environmental Education Board

A 1990 legislative initiative established the Wisconsin Environmental Education Board (WEEB). Its mission is to “Provide leadership in the development of learning opportunities that empower Wisconsin citizens with the knowledge and skills needed to make wise environmental decisions and take responsible actions in their personal lives, work places, and communities.” The WEEB administers an annual small grants program of \$200,000 which is distributed based on the merits of proposals submitted under specific guidelines. For information on the WEEB or the grants program contact: Wisconsin Environmental Education Board, P.O. Box 7841, Madison, WI 53707-7841, or call 608-266-3155.

Present members of the WEEB and the institutions they represent are as follows:

Jack Finger, Chairperson
Environmental Educators Representative
Waukesha

Spencer Black
Legislative Representative, State Assembly
Madison

Brian Burke
Legislative Representative, State Senate
Milwaukee

Cynthia Georgeson
Business/Industry Representative
Racine

Robin Harris
University of Wisconsin System Representative
Madison

Craig Karr
Department of Natural Resources Representative
Madison

Rick Koziel
Nature Centers/Zoos Representative
Fall Creek

Dan Kvalheim
Agriculture Representative
Sun Prairie

Bill Neuhaus
Labor Representative
Union Grove

Pauli Nikolay
Department of Public Instruction Representative
Madison

Tom Ourada
Legislative Representative, State Assembly
Madison

Bill Rockwell
Wisconsin Technical College System Representative
Madison

***Harold Spencer**
Conservation Organizations Representative
Janesville

Rick Wilke
Higher Education Representative
Stevens Point

*Harold Spencer passed away on Nov. 27, 1996. He was a longtime board member of the Wisconsin Wildlife Federation as well as being active on the WEEB. His wife, Marge, sent the following message as this report was being prepared. “On behalf of my husband Harold Spencer, thank you for recognizing his contributions to this educational project. Harold understood the enormous importance of environmental education in our schools. Not only does it provide good enhancement to any science courses, but instills in our youth that there is a responsibility to protect and preserve our environment and keep it viable in the future.” Harold can be remembered as an outstanding leader in protecting Wisconsin’s environment and the quality of life for its citizens. We will miss you Harold!

About the Wisconsin Center for Environmental Education

The Wisconsin Center for Environmental Education was established by a 1990 legislative initiative. It was placed in the University of Wisconsin System, College of Natural Resources at UW-Stevens Point. The mission of the WCEE is to “Promote, develop, disseminate, implement and evaluate environmental education programs for K-12 teachers and students in Wisconsin.”

Core staff of the WCEE are as follows:

Randy Champeau, Ph.D., Director
Dan Sivek, Ph.D., Secondary Education Specialist
Dennis Yockers, Ph.D., Elementary/Middle School Specialist
Phyllis Peri, M.S., EE Network/Resource Coordinator
Anne Green, Outreach Program Coordinator
Carol Wake, Office Management

The WCEE houses one of the largest EE curriculum materials collections in the nation. It offers university credited in-service courses and an M.S. program in EE leadership for teachers. The WCEE staff consults with schools on program development and evaluation. If you would like to visit or contact the WCEE, it is located at the University of Wisconsin-Stevens Point campus.

“The Talk” in the rooms and halls of K-12 education in Wisconsin overwhelmingly supports the need to initiate, develop, and improve environmental education (EE) in our schools. This perspective is qualified and quantified by the results of the statewide student, teacher, and administrator assessments reported on in this document. The follow-up question might be, “If this is ‘The Talk,’ what are our schools doing about it?” or “Are We Walking the Talk?”

Wisconsin teacher education and curriculum mandates relative to EE seem to be effective given that this study found teachers were more active in providing EE if they had pre-service training and/or if they are working in a district with a functional EE curriculum plan. There is, however, much room for continued improvement which is validated by the questionable achievement of students on the environmental literacy assessment. Students’ cognitive scores were low and they suggested that they would like to be exposed to more EE in their classrooms. Contrary to the students’ request, there are a number of schools and teachers which admittedly are not offering quality EE experiences for their students.

The data in this document suggests that it is fair to say Wisconsin has begun “Walking the Talk” on environmental education, but more work needs to be done on improving the quality of EE where it is presently provided, and quality programs need to be initiated in schools where they are not being provided. There seems to be no question that environmental education is needed and desired in our schools.

Some Key Findings

In general...

...Wisconsin students, teachers, and administrators overwhelmingly believe education about the environment should be an important part of the core educational experience of K-12 students.

Wisconsin Students....

....believe environmental problems can be prevented and solved and feel they have a personal responsibility to help prevent and solve such problems.

....felt all sectors of society including government, business/industry, agriculture, education and family have a responsibility to maintain environmental quality.

....demonstrated cognitive scores (knowledge) which were considered low relative to ecological understanding and awareness of environmental issues.

....perceived themselves as moderately involved in selected personal and common environmental actions (e.g., recycling). They did not see themselves as using consumer practices to effect improvement of environmental quality.

....at the elementary level felt school and special activities like field trips contributed most to their understanding of environmental concerns.

....at the secondary level felt television and self-directed reading contributed most to their understanding of environmental concerns.

Wisconsin Teachers...

....felt it was a "good idea" to mandate EE curriculum plans in the schools.

....felt that pre-service teachers should have course work in EE.

....reported that more than 50% of the schools do not have an EE curriculum plan in operation.

....felt that infusion into other subjects was the most desirable way to pursue EE.

....felt time, materials, and training were factors that influence the offering of EE.

Wisconsin School Administrators (Principals and Curriculum Directors)...

....felt that environmental education should be a priority and that school districts should be required to develop and implement environmental education curriculum plans.

....reported that about a third of their ranks did not have the knowledge or background needed to promote EE in their schools.

....reported that from 20-40% of their schools do not have EE curriculum plans in operation and many that do have plans were concerned about the quality of those plans.

....reported that lack of funding, time and personnel were factors impacting the offering of EE in their schools.

....felt teachers needed to express more of an interest in EE.

....reported taking relatively more passive actions (e.g. verbal support, dissemination of information) than aggressive actions (e.g. funding, release time, or hiring of appropriate personnel) to support EE.

Table of Contents

Acknowledgments	iii
Student and Teacher Assessment Advisory Council	iv
Administrator Assessment Advisory Council	v
About the Wisconsin Environmental Education Board	vi
About the Wisconsin Center for Environmental Education	vii
Preface: About the Title “Are We Walking the Talk?”	viii
Some Key Findings	ix
List of Appendices	xi
Introduction	1
Section I: Student Environmental Literacy Assessment	3
Introduction and Purpose	3
Development of the Assessment	3
Populations and Survey Administration	4
Results	5
Summary	11
Section II: Teacher Environmental Education Assessment	13
Introduction and Purpose	13
Development of the Assessment	13
Population and Survey Administration	13
Results	13
Summary	19
Section III: Administrator Environmental Education Assessment	21
Introduction and Purpose	21
Development of the Assessment	21
Population and Survey Administration	21
Results	22
Summary	27
Section IV: Comprehensive Findings, Implications, and Strategies	29
Importance of Environmental Education	29
Implementing Environmental Education	29
Student Achievement	30
Structural Support	31
Summary	32
Strategies for Improvement	33
References	35

List of Appendices

A.	Summary of Response Frequencies: 1994 Environmental Survey of Wisconsin Fifth Grade Students	37
B.	Summary of Response Frequencies: 1994 Environmental Survey of Wisconsin High School Students	53
C.	Summary of Response Frequencies and Means: 1992 Environmental Education Survey of Wisconsin Teachers	73
D.	Summary of Response Frequencies and Means: 1994 Environmental Education Survey of Wisconsin School Administrators	87
E.	Instrument Development Framework for Student Environmental Literacy Assessments	97
F.	Description of Item Analysis and Criteria Used for Selection of Items Included in the Student Environmental Literacy Assessment Instruments	103
G.	Demographic Survey Given to Teachers Administering the Student Environmental Literacy Assessments	105
H.	Results of Teacher Survey t-test Comparisons Between Teachers Who Have or Have Not Received In-service EE Training Relative to Their Perceived EE Competencies, Attitudes, and Class Time Spent	107
I.	Results of Teacher Survey t-test Comparisons Between Teachers Whose Districts Do or Do Not Have an EE Curriculum Plan Relative to Their Perceived EE Competencies, Attitudes, and Class Time Spent	109
J.	Chi-square Comparisons Between Principals Who Have Not Attended Any Environmental Education Courses, In-services, or Workshops and Those Who Have Attended Three or More EE Courses Relative to the Degree of Action They Take to Support EE in Their School	111

As science and society strive to gain more insight into how the world works, it is clear that one recurring axiom is that the natural environment plays a direct and significant role in determining human quality of life. As a result, citizens, on a daily basis, are expected to assimilate and act upon a growing list of environmental concepts such as sustainability, conservation, water quality, air quality, energy alternatives, solid and hazardous waste, recycling, etc. Additionally, poll after poll (Dunlap, 1992; Roper, 1992, 1995) indicate that the citizenry of the United States believe it is right and good that the public develop an environmental literacy or the ability to factor environmental ideals into individual lifestyles and social norms.

In the United States, an obvious indication of the societal commitment to environmental literacy can be found in the growing number of states that are working to establish or strengthen environmental education in their K-12 schools (Ruskey and Wilke, 1994). Wisconsin is an excellent case in point. The Wisconsin legislature has enacted several pieces of legislation intended to promote the development of environmental education within the state's K-12 schools. This type of legislation was instituted as far back as 1938.

Created in 1990, the Wisconsin Center for Environmental Education (WCEE) represents one of the more recent legislative initiatives established to assist schools in the development of environmental education. As part of its responsibilities, the legislature mandated that the WCEE assess the environmental education status and needs of Wisconsin students and teachers. The intent of this assessment was to identify avenues for promoting, facilitating, and establishing quality environmental education programs within the K-12 schools of Wisconsin.

Over the last four years, the WCEE has been actively involved in collecting data on the environmental literacy and needs of the state's students, teachers, and school administrators. With support and guidance from the Wisconsin Environmental Education Board and the Wisconsin Department of Public Instruction, the WCEE conducted an environmental literacy assessment of

over 3,500 fifth grade and high school students. Additionally, over 900 teachers were surveyed to determine their perceived competencies and needs related to environmental education. Finally, more than 1,100 Wisconsin school administrators, (i.e., principals and curriculum coordinators) were surveyed to determine the degree to which they support environmental education and to learn what they felt were the most pressing needs related to the development of environmental education in Wisconsin schools.

This report combines the results and conclusions of the individual studies to provide the first comprehensive profile of K-12 environmental education in Wisconsin schools. Sections I through III of this document contain a summary description of the data collection processes, results, and conclusions as they respectively relate to the student, teacher, and administrator assessments. Copies of the data collection instruments with results are located in Appendices A, B, C, and D. Section IV presents comprehensive findings, implications, and strategies for improving environmental education in Wisconsin based on integration of results from the studies. If reviewed and interpreted appropriately, educators in Wisconsin can use the results presented here to significantly improve the process of environmental education in Wisconsin schools.