

Instructional Impacts of Environmental Education on Citizenship Behavior and Academic Achievement

[Research on *Investigating and Evaluating Environmental Issues and Actions: 1979 - 2000*]

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People in environmental education, serious about making changes in citizenship behavior (citizenship decision-making) regarding the environment and other aspects of science and society, are beginning to realize how important it is to modify human decision-making in culturally productive ways. The newest national educational goals for science and the social studies also stress a need for responsible citizenship behavior as a part of a sound general education. Goals in language arts and reading stress information accessing, information processing, and critical thinking skills.

Some educators, unfortunately and for a number of reasons, deny the need for this kind of education. Others want to accommodate change and grasp for ideas and strategies that will help make that change a reality. Unfortunately, there are relatively few curricular packages available which can be scientifically documented as successful for developing responsible citizenship decision-making. And, too, there is far too little known about what precedes or stimulates responsible citizenship behavior, even though educational philosophers have written about it and a number of researchers have tried to investigate it. The studies described below comprise a corner of the research which focuses squarely on issue oriented citizenship decision-making, specifically in relation to classroom strategies designed to permit students to think through issues and actions. All included as the experimental treatment, *Investigating and Evaluating Environmental Issues and Actions*, or a topical treatment of that approach. [Note: The studies described below were all conducted in formal classroom situations at a variety of grade levels and in a variety of settings. A chart which summarizes the findings of these studies follows.]

Research on Efforts to Influence Behavior in Learner Populations

1. Ramsey (1979); Ramsey, Hungerford & Tomera (1981)

Purpose: To compare three modes of instruction on learner behavior: (1) issue investigation and citizenship action instruction, (2) issue case study instruction (issue awareness), and (3) typical junior high science instruction.

Samples: Three intact eighth-grade classrooms in a moderate size southern Illinois community.

Design: Quasi-experimental, Post-only Comparison

2. Klingler (1980)

Purpose: To study the effects of issue investigation instruction with and without subsequent training in citizenship action skills.

Samples: Two intact eighth grade classes taught by the researcher (n = 18 in each).

Design: Quasi-experimental, Post-only Comparison

3. Researcher: Ramsey (1987); Ramsey & Hungerford (1989)

Purpose: To investigate the effects of issue investigation and citizenship action skills training on a number of variables associated with environmental behavior. In this research, a number of teachers delivered the instruction rather than the researcher.

Samples: Experimental seventh grade classrooms (four classes, student $n = 64$) were located in southern Illinois, western Kentucky, and Kansas City, Missouri. Control classes (four classes, student $n = 85$) were located in southern Illinois and suburban St. Louis.

Design: Quasi-experimental, Post-only Comparison (classroom unit of analysis)

4. Holt (1988)

Purpose: To assess the effects of issue investigation and citizenship action training on average and low ability students.

Samples: Two eighth grade, intact groups ($n = 21$; $n = 25$).

Design: Pre-experimental, Pretest-Posttest Comparison

5. Withrow (1988)

Purpose: To investigate the effects of a case study approach to issue investigation on the development of responsible citizenship behavior of students and associated variables.

Samples: Two intact self-contained fifth-sixth grade classrooms in a rural school district in Southern Illinois: n = 29, experimental; n = 18, control.

Design: Quasi-experimental, Post-only Comparison

6. Simpson (1989)

Purpose: To investigate the effects of an extended science-related social issue case study curriculum on citizenship behavior of fifth and sixth grade students as well as on precursors associated with this behavior.

Samples: Fifteen intact fifth and sixth grade classrooms from Illinois and Tennessee (nine classes, n=187 in the experimental group and six classes, n=116 in the control group).

Design: Quasi-experimental, Post-only Comparison (classroom unit of analysis).

7. Jamaluddin (1990)

Purpose: To assess the effects of an STS issue-focused university course on selected variables associated with issue investigation/evaluation and citizenship behavior.

Samples: Six intact heterogeneously grouped elementary school science methods and STS issue investigation classes (n=51 in the experimental group and n=35 in the control group).

Design: Quasi-experimental, Post-only Comparison.

8. Ramsey (1993)

Purpose: To investigate the effects of issue investigation and citizen action skills training on a number of variables associated with environmental behavior. This investigation is similar to the one Ramsey (1988) performed with seventh graders.

Samples: Eight heterogeneously grouped eighth-grade classes from southwestern Illinois and northwestern Kentucky (4 classes, n=98 in the experimental group and 4 classes, n=86 in the control group).

Design: Quasi-experimental, Post-only Comparison (classroom unit of analysis).

9. Bluhm et al (1995)

Purpose: To investigate the effects of issue investigation and citizen action skills training on a number of variables associated with environmental behavior. This study was conducted during the development of an environmental literacy instrument.

Samples: Sixth grade students who had experienced the IEEIA approach (n = 24). These data were compared to sixth graders from a general classroom sample in two different states (n = 52).

Design: Quasi-Experimental, Post-only Comparison.

10. Bluhm & McBeth, 1996

Purpose: To investigate the effects of issue investigation and citizen action skills training on a number of variables associated with environmental behavior.

Samples: Sixth grade students in a language arts classroom which used the IEEIA approach (n = 24) were compared to sixth graders in a traditional language arts class in the same school (n = 19).

Design: Quasi-Experimental, Post-only Comparison.

11. Culen (1994); Culen & Volk (2000)

Purpose: To investigate the effects of issue investigation and citizen action training utilizing an extended case study instructional format on a number of variables associated with environmental behavior.

Samples: Fifteen intact heterogeneously grouped seventh and eighth grade classrooms from Illinois and Missouri: (four seventh grade classes and two eighth grade classes, n=98 in experimental group I; two seventh grade classes and two eighth grade classes, n=72 in experimental group II; two seventh grade classes and three eighth grade classes, n=75 in the control group).

Design: Experimental, Post-only Comparison.

Summary Chart: Research on Outcomes of Issue Instruction

<u>Researchers</u>	<u>Sample</u>	<u>Beh</u>	<u>AK</u>	<u>PAK</u>	<u>PAS</u>	<u>Sens</u>	<u>LoCI</u>	<u>LoCG</u>
Ramsey, 1979, 1981	7th Grade	+	+					
Klingler, 1980	8th Grade	+	+					
Ramsey, 1987, 1989	7th Grade	+	+	+	+	O	+	+
Withrow, 1988	5th & 6th Grades	+	+	+	+		O	O
Holt, 1988	8th Grade	+	+	+	+	O	+	O
Simpson, 1989	5th & 6th Grades	+	+			O	O	O
Jamaluddin, 1990	College	+			+		+	+
Ramsey, 1993	8th Grade	+	+	+	+	O	O	+
Bluhm et al, 1995	6th Grade	+		+	+			
Bluhm & McBeth, 1996	6th Grade	+		+	+			
Culen, 1994, 2000	7th & 8th Grades	+	+		+		+	O

Beh = Behaviors; AK = Action Knowledge; PAK = Perceived Action Knowledge; PAS = Perceived Action Skill; Sens = Environmental Sensitivity; ILoC = Individual Locus of Control; GLoC = Group Locus of Control

+ = significant differences found in comparisons (experimental to control or pre to post.)

O = no significant differences found in comparisons (experimental to control or pre to post.)

Empty cells indicate that variable was not measured in that study.

Discussion

Whether the school should fulfill the role as a change agent in society depends entirely upon the perspectives held by those making instructional decisions. However, far, far too many educators firmly believe that "teaching about something" will influence behavior. Were this true everyone would vote, there would be no venereal diseases in society, everyone would be scientifically literate, the average citizen would love classical literature, man's inhumanity to man would be diminished or absent, there would be no unwanted teenage pregnancy, laws would be respected, no animals or plants would be endangered, and no one would smoke. The same is probably true for citizenship responsibility regarding the environment. Environmental educators have long argued the importance of making people "aware" of environmental issues. Even today, many STS educators appear to be taking the same tack with issues surrounding science, society, and technology beyond those which are of an environmental nature. But, individuals in the research arena have known for a long time that this assumption is faulty.

Needless to say, what people *know* is important. Yet, *knowing* will not provide the learner with what we refer to as *ownership* and *empowerment*. If we want learners to become actively involved in issue investigation and evaluation as well as active citizenship outside of school it appears rather clear that ***they must own the issues on which they focus and both feel and be empowered to do something about them.***

Teaching for the elements of *ownership* and *empowerment* is, traditionally, not part of the teacher's repertoire for instruction. This is noted not to cast blame but, instead, to point out that teacher training is notorious for failing in its responsibility to help teachers develop the skills and motivation they need to make those instructional changes which appear to be so very necessary. Nor are these instructional skills easy ones to come by. Several years of training teachers funded projects and in preservice teacher education at SIU-C have shown that this takes time. At the very least, *teacher training necessitates a modification of philosophy, the acquisition of a wide variety of skills* (many of which are foreign to most teachers), *practice in the use of these skills and the methods associated with them, and help in learning how to evaluate students for grading purposes.*

Changing a pattern of inept teacher education is beyond the purview of this paper. Even though teacher training institutions are failing teachers and children, it seems incumbent upon all who wish to see changes take place to transcend this sorry state of affairs and begin looking at what we need to do to make changes happen in the classroom and in students' lives. In a sense, we need to consider dual dimensions - attitude changes and skill acquisition on the part of

teachers and attitude changes and skill acquisition on the part of students. The question then becomes, how can we provide teachers and students with *ownership* (in its dual dimensions) and *empowerment* (again, in its dual dimensions)?

The Key Variables Associated with "Responsible Citizenship Behavior"

In the research described above, numerous variables were shown to be significant and associated with *responsible citizenship behavior, problem identification, or sensitivity*. This seems like an odd assortment. Yet, they have some very strong glue holding them together. "Behavior", in the sense of issue investigation and citizenship responsibility seems rather straightforward and cogent here. But, what of the other two?

Problem identification, in this research, deals primarily with one phase of problem solving, i.e., it is part and parcel of what is referred to here as "issue investigation". Issue investigation is a form of problem solving and "problem identification" a critical component thereof. In fact, Albert Einstein once said that the identification of a good problem is the most important step in problem solving (paraphrased). Therefore, if students are to be good problem solvers in the issue dimension, it seems apparent that they should be able to intelligently identify the problems on which they will focus.

Sensitivity, in this research, focuses on those attributes which provide an individual with an empathetic view of the environment. A great deal of research strongly indicates that environmental sensitivity is one of the major precursors to environmental behavior. Interestingly, some research shows that we can change behavior without it but we don't know if this behavior will stay in place over the long haul without it. We simply don't have that answer so we must assume that it plays an important role in long term behavior.

Given that these three things (i.e., overt behavior, problem identification, and sensitivity) seem to be tied together, what does all of this mean? Put another way, what are the important elements that need to be attended to if the school is to provide for changes in human behavior in an environmental/STS dimension?

The opinion of this paper is that there are certain key elements (i.e., "absolutes") that must be attended to if students are to become responsible citizens - outside of school - in an issue-oriented dimension. It goes without saying that this list may not be complete - nor accurate in its entirety. However, what we know from research is fairly clear and the risks certainly seem worth taking.

Here are the "absolutes" that seem to be so very necessary: Students should have . . .

- ***sound problem identification skills.*** They should be able to identify problems which are important to them in the communities/regions in which they live.
- ***a degree of environmental sensitivity.*** With sensitivity seemingly so important as a precursor to behavior, this appears truly important. However, it is not going to be easy for the formal classroom to accomplish this, even though it may be possible.
- ***issue investigation and evaluation skills.*** The ability to investigate and subsequently to evaluate issues runs throughout much of the research discussed in this paper. It would be hard to tease out the "precise" components (in a research sense) but we *know* that students must be able to effectively evaluate important issues before they can make intelligent decisions about what to do about them. It also appears that a key element in *ownership* (discussed earlier) is personal involvement by students in issues under investigation.
- ***knowledge of and perceived skill in the use of citizenship action strategies.*** These variables shows up over and over again in one form or another in a great preponderance of the research discussed here. And, these variables may well be the easiest to deal with in the classroom. How valuable they would be in and of themselves, without the framework of issue investigation, is unclear. However, it is hypothesized that there is a synergistic effect here and the Klingler research indicates rather strongly that both are needed.
- ***an internal locus of control.*** Locus of control is a key element in the concept of *empowerment*. Knowledge of action strategies without a concomitant feeling that the action will result in something positive probably won't get the job done. So, opportunities must be provided that give students a feeling of success (even though we know that success is not met at every turn in citizenship roles). The teacher is a powerful force here in helping students make good citizenship decisions, helping them find success on one hand and salvaging their defeats on the other. Certainly, early successes must be deemed important.

In the future, other researchers may find that some of the variables left out of the list above should have been included. However, an intense SIU-C association with all of these research studies (except the Tanner research) provides a strong gut-level feeling that the other variables that show significant implications are ancillary ones and may well operate with certain populations under certain conditions. Further, some of these same variables are probably tied up with ones listed above, i.e., some are part and parcel of these. These variables would include: knowledge of issues, verbal commitment to take action, beliefs about and attitudes toward pollution and technology, a sense of personal commitment, attitudes toward economics, etc.

It is unfortunate that researchers cannot deal in absolutes. *Absolute truths* are not in the realm of empiricism. What must be dealt with here is *evidence*. That this evidence should be used intelligently to provide substantial changes in classroom instruction seems beyond question.

Some Suggestions

First and foremost, we must remember that the sensitivity variable needs to be initiated at an early age. Because this is a difficult variable for the formal classroom situation to accommodate, it may be the most difficult to achieve.

Classroom teachers can't turn learners into family campers, trappers, hunters, fishermen/women, hikers and people associated with other sensitivity-building avocations. Of course, the school can provide out-of-door activities, but can it provide those in a dimension designed specifically to promote sensitivity? Remember, the out-of-door activities reported by sensitive individuals focus largely on long-term experiences with relatively pristine environments. Too, these activities are either on an individual basis or with one or two close associates. The class field trip may not be an appropriate vehicle - however, it may be possible for the school to accommodate some of these experiences by planning activities which take place in relatively small groups and in relatively pristine environments at times that can maximize at least a modicum of awe and wonder, i.e., sincere appreciation. And, there must be many of those experiences.

Perhaps the best shot that the school has for achieving sensitivity is to combine high quality outdoor activities with high quality role models for teachers. These teachers should, themselves, demonstrate a high level of sensitivity, be able to communicate this sensitivity to learners, and be willing to lead students to aesthetic environmental experiences via books, television, and other media (along with the outdoor experiences designed to promote this variable).

A number of the behavior-related attributes, beyond sensitivity, can be achieved by planning for instruction that gets learners involved, eventually, in the investigation and resolution of issues. Young children (primary and intermediate) can receive *articulated instruction* on environmental issues via what is called the extended case study. The traditional case study deals with issues at an awareness level. The extended case study, on the other hand, is divided into five components and takes the learner through the issue investigation and citizen skill levels, as well.

Components of the Extended Case Study

1. . . . a carefully selected *issue topic* around which a case study can be developed, e.g., disposal of municipal solid waste, a locally-endangered species, land use management in the community/region air/water/aesthetic pollution, loss of wetlands, forest fire management, preservation of ecologically important plant/animal communities, population growth, etc., etc.;
2. . . . the *science content* that serves as prerequisite knowledge to understanding the scientific nature of that issue;
3. . . . *issue awareness* which focuses on the anatomy of that issue (the "players" involved, their positions, beliefs, and values), the history of the issue and possible solutions and impediments to solution;
4. . . . some aspect of *issue investigation* which gets learners involved in some form of data collection regarding that issue (e.g., surveys, questionnaires, opinionnaires, interview with key players, etc.); and
5. . . . the *citizenship skills* (strategies) that can be used to help resolve the issue coupled with an "action plan" developed cooperatively by the students and teachers, and implemented if desired.

Issue Investigation and Citizenship Action Skill Training

Older students, middle school and higher, should receive both case study instruction (at a more sophisticated level) plus what has become known as "issue investigation and citizenship action skill training". With this strategy . . .

. . . teachers guide students through an introduction to issues, identifying problems/issues, analyzing issues, using secondary sources to obtain information about issues, using primary sources to obtain information about issues, recording and interpreting collected data, and demonstrating citizenship strategies used in society for the remediation of issues. Major activities in this strategy include allowing the student to choose an issue of interest to him/her and investigating and evaluating that issue, reporting out his/her findings to peers. The issue investigation is followed by the development of an action plan for helping to remediate that issue. The plan can be implemented or not, depending on the attitude of the student and judgment of the teacher.

It should be stressed that citizenship behavior-directed instruction needs to be articulated across grade levels. There is some evidence (not reported in this paper) that the behaviors sought will tend to erode, unless there is periodic reinforcement across grade levels. This erosion is not complete but students, as they grow older and receive no reinforcement, tend to back away from citizenship behavior as they lose teacher support and a social support system. Similarly, the skills associated with responsible citizenship behavior should be developed across subject areas with a number of content specialists (e.g., science, social studies, language arts, home economics, etc.) working cooperatively using a team-teaching/infusion approach.

Thus, the answer to developing responsible citizenship behavior as it relates to environmental issues is not an easy one. But, the answer is there! It simply awaits a faculty that has a commitment to change and the vigor to see that change occur.

Research: Issue Investigation and Achievement

The Issue Investigation Program is an innovative and non-traditional instructional treatment. When considering the adoption of such a program, a major concern of teachers and administrators alike is student achievement. When incorporating a new program into an already crowded curriculum, something else will likely be omitted. How can the school insure that students' achievement will not suffer as a consequence of the omission of traditional content-oriented classes?

1. Gavila (1992)

Purpose: To compare two modes of instruction (environmental science instruction and issue investigation and action instruction) on learner achievement in science and social studies as measured by the Iowa Test of Basic Skills

Samples: Two eighth-grade classrooms in a large midwestern city (predominantly minority students). The comparison group (n=64) received semester-long instruction about environmental issues using a traditional didactic approach.; The experimental group (n=81) was involved in a semester long course which utilized the issue investigation approach. Both groups received a traditional social studies treatment.

Design: Experimental, Post-only Comparison

Results: Presented in Table 1.

Table 1. T-test Comparison Between Awareness and Issue Investigation Classes on Science and Social Studies Achievement (Gavila, 1992)

Subject	Class	n	Mean	S.D.	t-value	df	p
Science Achievement							
	Awareness	64	8.070	2.813	2.505	143	.013*
	Issue Investigation	81	9.189	2.553			
Social Studies Achievement							
	Awareness	64	7.245	2.103	2.815	146	.006*
	Issue Investigation	84	8.256	2.209			

* Significant

In the Gavila study, the issue-focused course was taught in addition to the traditional science and social studies classes. Thus, differences in achievement scores would likely be due to the different levels of issue instruction treatment experienced by the students (i.e., issue investigation/evaluation vs. issue

awareness). In the issue investigation approach students are taught process skills important to both science and social studies and apply those skills in the investigation of a science-related issue of personal interest to them. It appears that the acquisition of those higher order skills permits students to function at a higher order of cognition when approaching the standardized tests of achievement.

Needless to say, almost every design used in a public school setting is flawed. In the Gavila (1992) study, it was impossible to randomly assign students to groups or teachers to sections. In addition, it cannot be assumed that the maturation variable was controlled. However, this study is particularly important due to the unique nature of the treatment and the nature of the results.

2. Hungerford (1992)

Purpose: To obtain teacher observations regarding the achievement of students experiencing issue investigation and action instruction as compared to students experiencing a traditional approach to the teaching of science and social studies.

Samples: 28 teachers from eight states who taught at the 5th through 12th grade levels. All had been trained in the issue investigation approach. These teachers represented 51% of those who received surveys.

Design: Description research, Survey.

Results: Presented in Table 2, on the following page.

Table 2. Teacher Reports on General Academic Achievement and Superior Academic in Specific Academic/Skill Areas Among Students Who Experienced the Issue-Focused Instructional Model (Hungerford, 1992) [Student $n = 3,247$]

Teacher	State	Grade Level	n size	General Academic Achievement Observations			Observations on Achievement in Academic/Skill Areas					
				Less Than*	Same As*	Greater Than*	Overall	Science	Social Studies	Lang. Arts	Library Skills	
1	TX	6	28			X	X	X				X
2	MD	7	115			X		X				X
3	MD	5	30			X	X			X	X	
4	KY	8	15			X				X		X
5	**	8	300			X	X	X	X	X	X	X
6	WI	HS	150			X		X	X	X	X	X
7	IL	7	60			X		X		X		X
8	IA	7	960			X		X	X	X	X	X
9	TX	6	25			X	X	X		X		X
10	MO	8	200			X	X	X	X			
11	IL	7	140			X		X				
12	IL	HS	180			X		X				X
13	TX	5	22			X	X	X				
14	IL	6	75			X		X	X	X	X	X
15	IL	6	35			X		X	X	X	X	X
16	MO	7	40			X		X				
17	MD	6	60			X	X					
18	KY	8	**			X	X	X	X	X	X	X
19	IL	6	250		X	X	X	X				X
20	KY	6	75			X	X	X	X	X	X	X
21	MO	7	120			X	X	X		X		X
22	MD	HS	20			X	X	X				X
23	IL	8	65			X	X	X	X	X	X	X
24	IL	6	60			X	X	X	X	X	X	X
25	MD	8	**			X	X	X				X
26	MO	S	100			X	X					
27	TN	9	22			X	X	X	X	X	X	X
28	IL	8	100			X		X		X		X

* Less Than; Same As; Greater Than Those Not Having This Instructional Model

** No state or n size given on returned survey instrument.

Hungerford's survey results complement Gavila's findings. Ninety-six percent (96%) of the respondents indicated that the achievement of students experiencing this approach was greater than that of

their peers who had not experienced this training. (One individual indicated that the achievement of "issue-trained" students was the *same as or greater than* that of non-issue-trained students.) When questioned about the areas of achievement, 86% reported greater achievement in science, 46% reported greater achievement in social studies, 54% reported greater achievement in language arts, and 75% reported greater achievement in library skills. Sixty-one percent (61%) of the respondents reported greater overall achievement on the part of students experiencing the issue investigation approach.

Research References

- Bluhm, W.J., Hungerford, H.R., McBeth, W.C., and Volk, T.L. (1995). The Middle School Report: A Final Report on the Development and Pilot Assessment of the Middle School Environmental Literacy Instrument. Unpublished research paper, Southern Illinois University at Carbondale.
- Bluhm, W.J. and McBeth, W.C. (1996). Evaluation Report for *Investigating and Evaluating Environmental Issues and Actions: Student Impact Data*. Report to National Diffusion Network, U.S. Department of Education. Available from authors, Southern Illinois University, Carbondale.
- Culen, G.R. and Volk, T.L. (2000) The effects of an extended case study on environmental behavior and associated variables in seventh and eighth grade students. *Journal of Environmental Education*, 31(2), 9-15.
- Gavila, W. (1992). A Comparison Between Eighth Grade Awareness and Issue Investigation Classes on Science and Social Studies Achievement. Unpublished research paper, Southern Illinois University at Carbondale.
- Holt, J. G. (1988). *A Study Of The Effects Of Issue Investigation And Action Training On Characteristics Associated With Environmental Behavior In Non-Gifted Eighth Grade Students*. Unpublished research paper, Southern Illinois University at Carbondale.
- Hungerford, H.R. (1992). Teacher Reports on Achievement in Specific Academic/Skill Areas Among Students Who Experienced the Issue-Focused Instructional Model. Unpublished research paper, Southern Illinois University at Carbondale.
- Jamaluddin, S. (1990). *The Effect of an STS (Science-Technology-Society) Issue Investigation Course on Citizenship Behavior and Associated Variables in Preservice Elementary Teachers*. Unpublished doctoral dissertation, Southern Illinois University at Carbondale.
- Klingler, G. (1980). *The Effect Of An Instructional Sequence On The Environmental Action Skills Of A Sample Of Southern Illinois Eighth Graders*. Unpublished research paper, Southern Illinois University at Carbondale.
- Ramsey, J. (1979). *Effects of Environmental Action and Environmental Case Study Instruction on the Overt Environmental Behavior of Eighth Grade Students*. Unpublished master's thesis, Southern Illinois University at Carbondale.
- Ramsey, J., Hungerford, H. R., and Tomera, A. N. (1981). Effects of environmental action and environmental case study instruction on the overt environmental behavior of eighth grade students. *Journal of Environmental Education*, 13(1), 24-29.
- Ramsey, J. (1987) *Effects of Issue Investigation and Action Training on Environmental Behavior in Seventh Grade Students*. Unpublished doctoral dissertation, Southern Illinois University at Carbondale.
- Ramsey, J. and Hungerford, H.R. (1989) Effects of issue investigation and action training on environmental behavior in seventh grade students. *Journal of Environmental Education*, 20(4), 29-34.
- Ramsey, J. M. (1993) The effects of issue investigation and action training on eighth-grade students' environmental behavior. *Journal of Environmental Education*, 24(3), 31-36.
- Simpson, P. (1989). *The Effects of an Extended Case Study on Citizenship Behavior in Fifth and Sixth Grade Students*. Unpublished doctoral dissertation, Southern Illinois University at Carbondale.
- Withrow, V. (1988). *The Effects of an Issue Oriented Case Study on Fifth and Sixth Grade Students' Issue Knowledge and Citizen Action*. Unpublished research paper, Southern Illinois University at Carbondale.