

MICHAEL MURDOCH ENVIRONMENTAL LITERACY OF SEVENTH-DAY ADVENTIST TEACHERS IN THE PAROCHIAL SCHOOLS OF THE FLORIDA CONFERENCE OF SEVENTH-DAY ADVENTISTS

Abstract: In the United States, there is an environmental literacy problem. Americans possess limited knowledge about the environment and environmental issues, and they display limited positive action regarding the environment in which they live. Moreover, there is a debate whether a Christian's interpretation of Genesis 1:28 leads either to a lower or to a higher environmental literacy. The purpose of this study was to attempt to assess the environmental literacy of a group of Christian teachers, to determine the level of their environmental literacy, and to discover the interpretations that these educators have of Genesis 1:28.

Keywords: Environmental literacy, environmental education, teachers

Introduction

For those of us in the Christian community, the following biblical passage may be the starting point for a discussion of our role as it relates to the environment:

God blessed them and said to them, "Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish of the sea and the birds of the air and over every living creature that moves on the ground." (Gen. 1:28, NIV, 1984)

I believe that the Christian community's interpretation of these words generally sets the tone for its relationship with the natural world. The phrase "be fruitful and increase in numbers" is often interpreted as having to do with procreation of the human race, but this phrase has also

been interpreted to mean having humans be good managers of the natural world God created. A group of Judeo-Christian scholars who published the Cornwall Declaration on Environmental Stewardship proposed that the phrase deals with humans and God making "provision for our temporal well-being and enhancing the beauty and fruitfulness of the rest of the earth" (Barkey, 2000, p. xiv). Consequently, the phrase could be interpreted as a proclamation by God to Christians requiring them to take an active role in practicing good stewardship of the natural world.

"Fill the earth and subdue it" does not have to be interpreted to mean giving humanity permission to abuse the environment; instead, it can be interpreted to mean using the earth's resources wisely. Barkey (2000) comments insightfully in his book, *Environmental Stewardship in the Judeo-Christian Tradition*:

The Hebrew for conquering or subduing, (i.e. "koveish") clearly distinguishes between annihilating and conquering. The former is a verb for utterly destroying one's enemy. The latter refers to leav-

From this perspective, human rule over creation consequently has human welfare as the focus, and the well-being of the world resources as a top priority. If we are going to have the world take care of us, we need to take care of it. Interdependence is vital.

Relative to the environment, there is a knowledge problem in the United States. In general, Americans possess a limited knowledge about

man-environment relationship, through development of a citizenry with awareness and understanding of the environment, both natural and man-altered. Further, this citizenry will be able and willing to apply enquiry skills, and implement decision-making, problem-solving, and action strategies toward achieving/maintaining homeostasis between quality of life and quality of environment. (p. 158)

Many environmental educators point to two important documents: The Belgrade Charter (UNESCO-UNEP [United Nations Educational, Scientific and Cultural Organization—United Nations Environment Programme], 1976) and The Tbilisi Declaration (UNESCO, 1978). The following goal statement is made in the Belgrade Charter:

The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the preventions of new ones. (UNESCO-UNEP, 1976, p. 2)

A couple years later, the first global intergovernmental conference on environmental education approved the Tbilisi Declaration. This declaration, coming from the Belgrade Charter, suggested that the basic aim of environmental education is to guide to an understanding of the complex nature of both the natural and built environments caused from the interaction of their social, economic, biological, physical, and cultural aspects. Its aim also includes providing help in gaining the knowledge, attitudes, values, and practical skills necessary for taking part in a responsible and effective way in predicting and solving environmental problems, and also in the management of the quality of the environment (UNESCO, 1978).

Hungerford, Peyton, and Wilke (1980) used those two statements to suggest that the superordinate goal of environmental education is “to aid citizens in becoming environmentally knowledgeable and, above all, skilled and dedicated citizens who are willing to work, individually and collectively, toward achieving and/or maintaining a dynamic equilibrium between quality of life and quality of the environment” (p. 44).

Through the years since, the definition of EE (environmental education) has become more refined, but agreement on a single definition has still not been reached. The definitions used today continue to include such terms as aware, motivated, and knowledgeable, but include language dealing with responsible actions, critical thinking, and responsible decision making. Nevertheless, the less complex Stapp (1969) definition is the most commonly cited and is most often used by practitioners (Disinger, 2001).

The formation of an environmentally literate citizenry is the major

Due to the increased concern for the environment, EE is beginning to receive more attention in the media, but is still not a high priority in American schools (Cole, 2007; Ernest, 2007; Wilson & Smith, 1996). As stated in the literature, part of the problem is that EE should be interdisciplinary, but many teachers feel that it should be taught in the science classes (Cole, 2007; Wade, 1994) and do not feel that they have room in their already-packed curriculum.

Successful EE is dependent on the classroom teacher (Ramsey, Hungerford, & Volk, 1992). Many do not know how to teach it, because EE is not typically included in their training (Buethe & Smallwood, 1986) nor is it generally referred to in professional journals of education (Wilson & Smith, 1996).

Two statewide surveys and one national survey have been conducted to discover the environmental literacy of the citizenry. All three found limited environmental literacy. Coyle's (2005) study, the national survey, reported differences based on gender, age, and level of education. The same was found in Pennsylvania (Johnson & Smith-Sebasto, 2000) and Minnesota (Murphy, 2002), along with differences based on socio-economic class and urban versus suburban and rural living locations.

Educational Context

Teachers' classroom presentations are affected greatly by their knowledge base and affective relationship to the subject matter being presented (Buethe & Smallwood, 1986). This means that if teachers do not have the knowledge and/or skill to incorporate EE into the program of study, their students could be limited in reaching significant levels of environmental literacy.

There is limited research on teachers' environmental literacy, even though environmental literacy is an important goal of EE. The limited research that has been done shows that teachers have limited environmental literacy. In the United States, only a few states' teachers have even been surveyed. Buethe and Smallwood (1986) studied teachers in Indiana. Todt (1995) looked at Ohio teachers. Owens (2000) looked at urban teachers in a southern state. Champeau's (1997) study of Wisconsin teachers was the most comprehensive study that I found of any one state's teachers.

The lack of environmental literacy in education is not just an American problem. Cutter (2002) explored knowledge and attitudes of Australian elementary teachers and found them lacking. Hsu (1997) studied responsible environmental behaviors of secondary teachers in

of fundamentalism or sectarianism and did not support a “stewardship” theme. Guth, Kellstedt, and Smidt (1995) reported those outside of the

found that Latinos had low wildlife knowledge, which seems to support the findings of the current study. Further study into the relationship of ethnicity and environmental literacy is needed, especially in the understudied Hispanic community.

Frequently Missed Questions

Analysis of answers given on the cognitive subscale revealed that the participating teachers had adequate knowledge of ecological concepts. Areas for improvement include knowledge of ecological principles involving individuals, populations, and communities; knowledge of environmental problems and issues; and knowledge of environmental issue investigation and action strategies.

Environmental Sensitivity and Attitudes Toward Environment

This study suggests that the participating teachers feel that the environment should be protected. Most teachers felt it was their responsibility to help solve environmental problems and that the things they do have an effect on the quality of the environment. The conflict came when personal freedom was going to be impacted by governmental regulations. When questions involving regulations were answered, respondents were still pro-environment, but the responses were more scattered along the spectrum. These results were similar to those reported by Brehm and Eisenhauer (2006) on their Mormon population. In their study, Mormons showed great concern for the environment, but showed lower perception of importance and stronger opposition to public-land restrictions. Truelove and Joireman (2009) found that Christian orthodoxy was negatively related to willingness to pay for environmental protection.

The statement "I believe that plants and animals exist to be used by humans" produced a response pattern with similar rates for strongly agree, agree, no opinion, and disagree. This pattern seems to support White's (1967) idea that nature is there to meet humanity's need and the Judeo-Christian ethic gives humans the right to do as they see fit with the environment. It is also consistent with findings of Klineberg et al. (1998). But when looked at in the context of the participant's view of Genesis 1:28, it can be explained that Christian teachers believe they are responsible for taking care of the environment. Moreover, there was a minor theme of the earth being a gift from God.

When the responses from the open-ended question were analyzed,

of the environment paralleled the results from the quantitative portion of the survey. The view of humanity being above the other organisms of the earth, but at the same time being responsible for taking care of the environment, was clearly evident. The presence of this concept is consistent with that which was found by others who have studied the views of other Christians (Kanagy & Nelsen, 1995; Kanagy & Willits, 1993; Kearns,

established, is that of the aesthetic nature of God flooding His revealed Word and created world" (p. 178). Because of this, Christians should want to take care of the environment. Unfortunately, the teachers of the Florida Conference of Seventh-day Adventists show only nominal environmental literacy. They do not seem to differ significantly from the general population of the United States. If the Seventh-day Adventist Church is serious about the need for environmental stewardship within its membership, it should consider ways to improve the existing condition. Teachers with suitable environmental literacy can widen the impact of environmental education broadly and effectively (UNESCO, 1988), and this could lead to improvement in environmental literacy for generations to come.

The leadership of the educational program of the Florida Conference of Seventh-day Adventists, as well as the leadership of the educational program of the North American Division of Seventh-day Adventists, may wish to give study to creating opportunities for enhanced and ongoing professional development. Such opportunity might focus on improving environmental knowledge and skills in teaching students about environmental issues, including the use of interdisciplinary field-based and research-based learning, as well as innovative technology in the classroom. Teachers could be provided with training on ways to provide field experiences as part of the regular school curriculum and to create programs that contribute to healthy lifestyles through outdoor recreation and sound nutrition. It is not just knowledge that the students need to receive, because it has been shown that knowledge does not necessarily translate into attitude change or pro-environmental behavior (Chawla, 1998; Hines et al., 1986/1987; Kollmuss & Agyeman, 2002; Marcinkowski, 1989; Sia et al., 1985/1986; Wilke, 1995; Zelezny, 1999).

Apparently, there are few programs that prepare teachers to provide coursework in environmental education and even fewer that require coursework in EE. Teacher preparation programs should require appropriate EE learning so that teachers emerge from training at least at the functional level in environmental literacy. There could be a requirement put in place that a class involving nature-based education be included in the certification requirements for teachers. Advanced teacher training could result in teachers performing at the operational level.

This study corroborates the idea that a holistic approach is needed to attain greater environmental literacy. There needs to be more than just an increase in knowledge. There also needs to be exposure to the environment so that individuals will connect with the environment; this

exposure will lead to an increase in a change in behavior and attitudes. Culen and Mony (2003) showed that even non-formal outdoor programming increases environmental literacy of students.

It is clear that providing more knowledge does not necessarily change behaviors and attitudes; although WELS scores were relatively high for cognitive (76%) and affective (73%) subscales, the behavioral subscale score was low (48%) in this study. More research could further explore the reason for this apparent disconnect between what is known and felt as compared to what is actually done. Why are these teachers not deciding to behave in the manner in which they seem to feel that they should?

Environmental education involves more than just scientific understanding. It underscores attitudes, actions, and beliefs. It involves people who have attitudes, behaviors, and concerns. Environmental issues also involve such issues as geography, economics, and race. Teachers should provide more than just a solid science education. They should equip students with life skills that will guide them in becoming responsible citizens. Before teachers can do that, however, they need to be trained to do so. This involves more than just science teachers; it must involve all teachers, regardless of the subject areas they teach. This study could be useful in the advancing of discussion about the need for environmental education programs in teacher education and the development of such programs.

Conclusion

In conclusion, this research does not support White's (1967) idea that Judeo-Christian teaching causes anti-environmental attitudes and behaviors. This study seems to show that the teachers in the parochial schools of the Florida Conference of Seventh-day Adventists do not show environmental literacy that is very different from that of the general public, which is nominal. The teachers' knowledge is adequate, and they say that being responsible for the environment and caring for it is part of the biblical message of Genesis 1:28, but their behaviors seem disconnected from this belief.

As Christian leaders, we need to be purposeful in our role of promoting care of the natural environment and our interactions with it. Sometimes this means incurring some financial expense to promote a more environmentally friendly approach. Christians need to develop an environmental education curriculum which integrates a spiritual component. We are called to be an example to the world around us. The

Disinger, J. F., & Roth, C. E. (1992).

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- Kearns, L. (1997). Noah's ark goes to Washington: A profile of evangelical environmentalism. *Social Compass*, 44(3), 349-366.
- Klineberg, S. L., McKeever, M., & Rothenbach, B. (1998). Demographic predictors of environmental concern: It does make a difference how it's measured. *Social Science Quarterly*, 79(4), 734-753.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239-260.
- Louv, R. (2005).

- Sia, A., Hungerford, H., & Tomera, A. (1985/86). Selected predictors of responsible environmental behavior. *The Journal of Environmental Education*, 17(2), 31-40.
- Stapp, W. B., et al. (1969). The concept of environmental education. *The Journal of Environmental Education*, 1(1), 30-31.
- Truelove, H. B., & Joireman, J. (2009). Understanding the relationship between Christian orthodoxy and environmentalism: The mediating role of perceived environmental consequences. *Environment and Behavior*, 41(6), 806-820.
- Todt, D. E. (1995). An investigation of the environmental literacy of teachers in south-central Ohio using the Wisconsin Environmental Literacy Survey, concept mapping and interviews (Unpublished doctoral dissertation). Ohio State University, Columbus.
- UNESCO. (1978). *The Tbilisi Declaration: Final report, Intergovernmental Conference on Environmental Education*. Paris, France: Author.
- UNESCO. (1988). *Final report, Intergovernmental Conference on Environmental Education (Mockba, United Nations Educational, Scientific and Cultural Organization with UNEP)*. Paris, France: Author.
- UNESCO-UNEP. (1976). *The Belgrade Charter*. Connect: UNESCO-UNEP. *Environmental Education Newsletter*, 1(1), 1-2.
- Wade, K. (1994). *National survey of EE teacher inservice education*. Ann Arbor, MI: National Consortium for Environmental Education and Training.
- Wenham, G. J. (1987). *Genesis 1-15*. Waco, TX: Word.
- White, L. (1967). The historical roots of our ecological crisis. *Science*, 155(3767), 1203-1207.