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THE EFFECT OF RACIAL DISTRIBUTION ON ENVIRONMENTAL EDUCATION IN TWO RURAL ELEMENTARY SCHOOLS: A CASE STUDY

Jimmy J. Simpson Jr
University of Nebraska-Lincoln

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THE EFFECT OF RACIAL DISTRIBUTION ON ENVIRONMENTAL EDUCATION IN
TWO RURAL ELEMENTARY SCHOOLS: A CASE STUDY

by

Jimmy J. Simpson Jr.

An Undergraduate Thesis

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Abstract

The purpose of this research is to help identify whether or not race plays a role in how much Environmental Education (EE) is being taught in elementary schools throughout the region. This study takes place in two rural elementary schools, less than 20 miles apart, in Northeast Nebraska; one with a mostly white population and the other mostly Native American. The researcher interviewed 7 teachers total at both schools in order to gain information about EE in the classroom and the extent to which it is being taught. Results indicated that race did not play a role in the amount of EE being offered at each school; instead, a lack of time during the school day due to continual preparation for standardized testing was the common cause of this problem.

Introduction & Literature Review

Environmental education (EE) is vital to elementary students because it becomes a catalyst for their future interest in the environment and their attitudes towards it. EE in a child's early years is necessary in creating educated adults who make educated decisions regarding the environment. Not only that, but it also helps students to become more well rounded and improve their educational experience. According to *The Effects of an Environmental Education Program on Students, Parents and Community* (2003) written by Trudi Volk and Marie Cheak, students who have participated in an environmental education program have actually shown improved reading, writing, and oral communication skills.

However, many, if not most, teachers across the United States are not teaching EE to their students because of several factors: a lack of resources, lack of interest, and a lack of time. *Oil and Water Still: No Child Left Behind limits and distorts environmental education in US schools* (2007) by David A. Gruenewald and Bob Offei Manteaw discusses the hampering that the No Child Left Behind Act of 2001 has had on the progress of EE. Due to this act and standardized testing, teachers are being forced to concentrate on a very strict curriculum that prepares students to pass these tests rather than explore other subjects. In *Biodiversity Curriculum that Supports Education Reform* (2005), Jeanette Randall-Wilson and Martha C. Monroe emphasize that implementing EE into a teacher's every day curriculum has been proven to help students earn higher scores in many, if not all, of the subjects addressed on standardized tests.

The implementation of EE into every day curriculum, rather than have it be its own subject in school, is a common thread throughout much of my research. *Improving Student Achievement with Environmental Education* (2009) written by Martha C. Monroe and Vicki

Crisp discusses the struggle to include EE as a subject in standardized tests. In the state of Florida, EE was deemed a course of study that can be covered by many other subjects, namely Science and Social Studies. The authors described a study conducted with 9th and 10th graders that combined biodiversity lessons with writing skills. Students practiced writing while learning about endangered habitats, invasive species, and taxonomy. The Florida Comprehensive Assessment Tests (FCAT) writing rubric was used to measure the improvement of the students' scores after the biodiversity lessons were implemented. Results found that the combination of writing practice and interesting science topics significantly increases writing test scores (Wilson & Monroe 2005).

The importance of EE at an early age is also a common thread seen through my research. *Factors Influencing Young People's Conception of Environment* (2003) by Tony Loughland et al. stresses the need for students to receive some sort of EE in their early development years so they can view the environment as a "relation" rather than an "object." The only way to develop this kind of thinking in students is to instill it in them at an early age so it becomes second nature to them. Carole Basile and Cameron White discuss in their 2000 article *Respecting Living Things: Environmental Literacy for Young Children* the significance of inculcating the idea that we must have respect for our environment and all living things around us.

The previously cited article by Volk and Cheak (2003) explored the social impact that EE has on students, parents and the community, instead of the academic impact. This study took place on the island of Molokai in Hawaii. The environmental program used in Molokai was based on a well-researched EE program called "Investigating and Evaluating Environmental Issues and Actions (IEEIA)." The program worked with 5th and 6th graders in four elementary schools on the island. The program is a skill development program designed to help learners take

an in-depth look at environmental issues in their community and how to resolve those issues. This program is a key example of how integrating EE into subjects throughout the year, and not just mentioning it in passing, can actually benefit students' academic achievement and an entire community. This program on Molokai helped increase parent involvement in their student's schoolwork and also helped the entire community address the environmental issues that they were facing.

In the state of Nebraska, EE plays a role in elementary schools, but a small one. EE is taught in junction to Earth Sciences in schools, but is not taught as its own subject. The Nebraska Alliance for Conservation and Environmental Education (NACEE) has developed the Nebraska Environmental Literacy Plan in order to revise the state's Department of Education's standards. The Nebraska Department of Education revises its standards every five years and the NACEE is attempting to incorporate specific curriculums to improve the level of environmental education in Nebraska schools.

In a 2005 study conducted by Rebecca M. Young and Sharron LaFollette entitled *Assessing the Status of Environmental Education in Illinois Elementary Schools* (2009), researchers sent surveys regarding EE to teachers throughout the state of Illinois. Of the over 200 teachers that replied, 91% said that they taught about the environment at least once in the school year, yet most students were only exposed to 22-100 minutes of EE during the year. While this study shows that EE is all but ignored in these elementary schools, it does not tackle an important matter that I would like to address.

There are numerous studies regarding the unequal distribution of resources available to schools with low-income and racially diverse students, as well as the fact that their academic performance is continually lower than those students growing up in mostly white areas. *Low-*

Income Students and the Socioeconomic Composition of Public High Schools (2009) by Robert Crosnoe states, “As the proportion of the student body with middle- or high-income parents increased, low-income students progressed less in math and science.” This continuing trend should cause concern among educators and staff that work in these affected areas.

Community and parental involvement is also disparate when comparing students of different racial backgrounds. Authors Jung-Sook Lee and Natasha K. Bowen wrote in their article, *Parent Involvement, Cultural Capital, and the Achievement Gap Among Elementary School Children*, “Parents with different demographic characteristics exhibited different types of involvement, and the types of involvement exhibited by parents from dominant groups had the strongest association with achievement.” As discussed in the study in Molokai, EE curriculum and programs can help to increase parental and community involvement in these at-risk areas.

Thesis Objective

In regards to the Illinois study assessing EE: whether a school with a heavy minority population was able to teach their students about the environment in the same way as a school with a mostly white population, is unknown. However, I believe that after I interviewed teachers in two elementary schools about the role that EE has in their classroom, and then compare those teachers' answers with the racial makeup of the students in their school, I would find that there is a discrepancy in the results.

In the Illinois study, nearly half of the teachers who said that they do not teach about the environment said they do not do so because of the lack of time available in the school day. Nearly half of teachers who did include EE in their curriculum said that they did so because it was of personal interest to them. So while time and personal interest are going to be the main factors in whether or not teachers teach their children about the environment, I firmly believed d that after my data was collected, I would see that of the little amount of EE that is occurring in Nebraska elementary schools, there would be even less taught at schools with a diverse racial background due to a lack of resources.

It is important to study this hypothesis to see if there really is a discrepancy so that schools' teachers, administration, and boards of education can address this issue and perhaps rectify it. And while many will believe that teachers will not need to worry about EE because it is not specifically included in standardized testing, studies that show that EE actually helps improve the scores of students can be used as a way to show teachers that perhaps the best approach to raising scores isn't the most obvious one. And not only can it help to improve test scores, but as shown in the study in Molokai, Hawaii, EE can help increase parental involvement

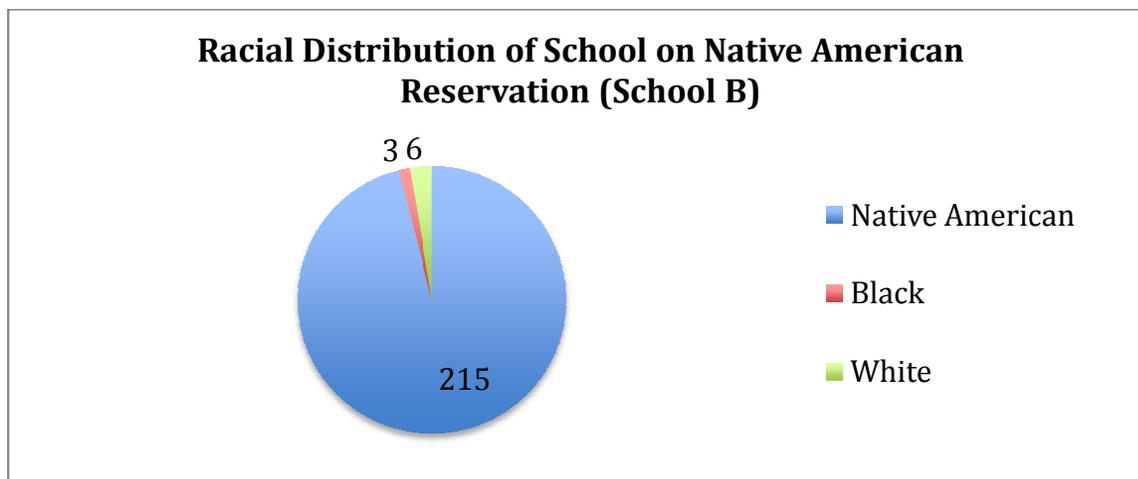
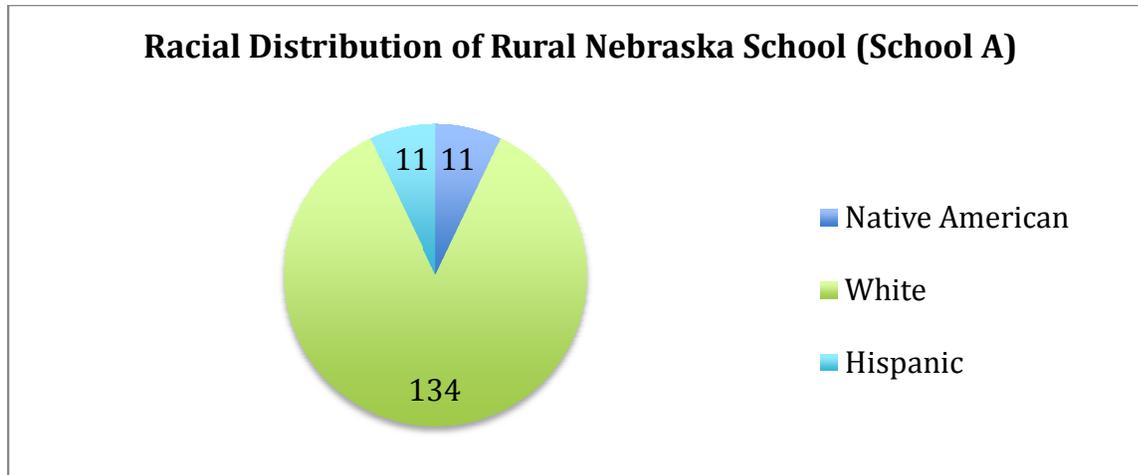
in their student's education as well as increase community involvement with their local public schools.

Methods and Materials

I interviewed 3 to 4 elementary school teachers, 3rd-6th grade, at two elementary schools in rural Northeast Nebraska. I interviewed teachers at an elementary school in rural Nebraska with low racial diversity (School A) and an elementary school located on a Native American reservation with a minority group being the majority of the school's population (School B). These two schools were specifically chosen in order to obtain results from teachers teaching at schools located less than 20 miles apart and in schools with distinct racial backgrounds. It is important to note that since this study is looking at EE that is given to students *in* the classroom, after school programs will not play a role in the data that I collect.

School A was specifically chosen because it is in a rural area that I have personal connections to; therefore it was easy to obtain approval from the administration to interview their teachers. School B was chosen because it is located on a Native American reservation and is located less than 20 miles from School A.

On the following page are graphs of the racial makeup of each school as provided by the Nebraska Department of Education in the 2009-2010 school year:



Since my thesis relies heavily on qualitative research, interviewing more than 4 teachers at each school could potentially cause my results I collect to become chaotic and disorderly and cause for inconsistencies in the final thesis presentation. These schools were specifically chosen in order to obtain results from teachers teaching in schools with distinct racial backgrounds and geographical locations. In order to obtain permission to interview teachers at both schools, I contacted ed school administrators for their permission and also for a list of teachers that I could contact.

I used a mixed methods approach to my research. I gave each teacher the National Environmental Education and Training Foundation (NEETF) Survey. This is a nationally

recognized survey regarding basic knowledge of the environment. I used the results of the NEETF survey to get a grasp of whether or not the teachers at these schools have a vested interest in the environment and if that played a role in if they include EE in their curriculum. After the completion of the survey, I asked the teachers a series of open-ended questions. I asked about their personal beliefs on environmental issues such as global warming and recycling. I then asked about what kinds of curriculum they have in the classroom regarding the environment. I was interested to see if any of the teachers teach about environmental issues as a separate subject, or whether it is just a small section of the science curriculum. I asked teachers to provide me with an estimated amount of time they spend discussing the environment on a daily basis. I then asked teachers whether or not they believed the amount of environmental education that their students are receiving in elementary schools is sufficient to their own personal standards of what they believe should or should not be taught.

These interviews were recorded on a tape-recorder. I provided the teachers with a confidentiality form and informed them that their names and the names of their schools would be changed for privacy purposes. By doing this, I hoped that the teachers would feel they have the opportunity to be completely honest about their opinions regarding EE and their administrators and school districts. I also informed the interviewees that their interviews and information will be stored on a password protected University computer only accessible by my advisor and myself.

The answers I received from both schools were then be compared to each other. I evaluated the attitudes that the teachers have towards the environment and categorized them into four categories: “Little to no interest in the environment,” “Some interest in the environment,” “Interest in the environment,” and “Great interest in the environment.” Then, I examined the

amount of environmental education each class received. I then assessed the racial distribution of each school to see the discrepancy, if any, in the results.

I hypothesized that the teachers at School A would have more material in their curriculum that will deal with the environment more so than School B. That being said, I believed that much of the material about the environment in School A will have a heavy emphasis on agriculture, but not necessarily environmental issues that are facing the world today.

I interviewed each teacher at a place of their choosing; three teachers from School B were interviewed in their homes and one was interviewed at a local restaurant. Two teachers from School A were interviewed in their homes and one was interviewed at the school in the evening. After introducing myself to the teachers, I handed them my confidentiality form and also gave them a copy of the form. Then I gave each teacher the NEETF Survey. I told each teacher that I would not look at the results of the survey until after the interview was completed. Once each teacher was through with the survey, I turned on my tape recorder and asked each teacher to state their first and last name, the school at which they teach, and the grade they teach. I then asked each teacher if they understood that this interview was being recorded. After all of this, I began the interview.

Results: School B

I am starting my results section with School B because the first interviews I conducted were with all of the teachers from School B. A week after these interviews, I interviewed the teachers at School A.

Grace

The first teacher I interviewed was Grace, a 3rd grade teacher at School B who has been teaching for seven years. Grace has 11 students in her classroom, all of which have some degree of Native American descent. Grace scored a 6 out of 12 on the NEETF Survey.

The first question I asked Grace was to explain to me how knowledgeable she believed herself to be regarding environmental issues. She confessed to not knowing much about the environment, however that her farming background gave her more knowledge than those who lived in the city, and also that she “cared more” about environmental issues because of her agricultural background. The next series of questions regarded issues such as global climate change, recycling, and hybrid vehicles. Grace admitted that she doesn’t pay much attention to issues such as global climate change because she feels as though it is out of her control. When asked about personal ways in which Grace helps the environment (recycling, energy-saving light bulbs, etc.), she switched the focus from herself to begin discussing what she does in her classroom. After Grace finished her sentence, I intervened to ask her a more specific question to bring the attention back to her: “Do you personally recycle?” Grace said that she would recycle if it was required of her, but she believes that “it is all going to be thrown into one bin anyway.” Grace lives over 30 miles from the school where she teaches, so I found it appropriate to bring up the issue of hybrid/fuel-efficient vehicles. I asked Grace, “If you had the resources, would you

opt for a hybrid/electric car to get better gas mileage?” Grace said that she would, but it depends on how cost-effective it is. Grace said, “If it would benefit me money-wise, I probably would.”

After this portion of the interview, I moved on to Grace’s classroom. I asked Grace what her favorite and least favorite subjects to teach were; her response was reading and her least favorite was science. I found that the average amount of science being taught in her classroom per day per quarter was about 30 minutes. After acquiring that information, I asked questions about EE. My first question was straightforward and to the point, “Do you see a lot of environmental education in your classroom or in your curriculum?” Grace said that she does not see a lot, but that she also doesn’t think that there is much taught in other towns either. This was a common occurrence while interviewing Grace. She seemed to be on the defense from the beginning of the interview. Once she found herself saying something about her classroom or school that could be perceived as negative, she immediately countered it by essentially saying that the activity in her classroom is essentially the same as all classrooms around the state. Grace discussed her students’ involvement in Earth Day extensively, saying that this is the time of year when they really “talk about it and hit it (environmental issues).” An important question that I asked every teacher was, “If you had an extra half hour or hour in your day and you could teach your students any subject of your choosing, what would you teach?” I made sure to encourage every teacher to answer this question honestly and to not answer to try to please me. Grace halfheartedly responded, “I guess I would spend more time on animals in the environment... That kind of thing.” She then said that after thinking about EE more, she realized that there are more things that she does in the classroom that relates to environmental issues, but she would need to get her book to tell me what they were. She said that she knew she addressed environmental

issues more than she had previously stated because there is a section about “environmental things” on one of their standardized tests.

And with that statement, Grace helped me to perfectly segue into my next line of questioning: standardized testing. I asked Grace how much of a role preparation for standardized tests played in her daily schedule. She said that her day is “pretty busy” and they “really try to get ‘em all in” (in reference to preparing for all standardized tests). But after those two short statements, Grace remembered that each week, her students get a “Scholastic News” newsletter that often contains current environmental issues.

After shortly discussing that, I prepared myself to ask a question that I knew would be uncomfortable for Grace to answer. I discussed School B’s poor standardized testing scores and that nearly all of the schools located at the bottom of the rankings were on reservations. Then I proceeded to ask Grace whether or not the racial make up of her students and her school’s surrounding community influenced the education that her students were getting. Grace took a long time to answer and chose her words carefully. “Maybe they come to us with not a lot of background that they need to progress... but I don’t know... I just... I think it’s basically like another school. I don’t really think it’s any different than another school.” Grace then brought up elementary schools that may have a large Hispanic or African American population and said that there is no difference between schools anymore because they are “so integrated,” unless we were comparing her classroom to a private school.

Amanda

The second teacher I interviewed was Amanda. Amanda also teaches 3rd grade at School B. She has been teaching for 8 years and has 13 students in her classroom, 12 of which have

Native American descent, the other is white. Amanda scored a 10 out of 12 on the NEETF Survey.

After interviewing Grace, I thought of a simple, yet effective way to ask the teachers how much they believed they knew about the environment. “On a scale of 1 to 10, how would you rate your knowledge of environmental issues?” Amanda responded that she believed her level of knowledge was at a 5. I also thought of another important question to ask the teachers, “Where do you obtain most of your knowledge regarding the environment?” Amanda replied through reading and the news. I then proceeded to ask Amanda about her personal views of the environment. Regarding global climate change, Amanda stated that she believes it is “super important.” She said, “I think that people just use too many plastics. Too much is disposed, too much is in the ocean. We need to recycle more. I think it is going to spiral out of control. I think it’s a huge problem.” When I asked her if she recycles, she said that she does not because it is too difficult to do it in a small community. But she said that if she had the resources, she would absolutely buy an electronic or hybrid car because she lives over 30 miles away from the school where she teaches. Amanda seemed to understand the dire consequences of global climate change and recognized that she could do more to help the environment.

I then asked Amanda if she saw a lot of EE in her curriculum. Without hesitation she responded, “No, not at all. The most information we get is through Scholastic News... I guess we do teach it, but it’s not a whole lot... It’s not in our books. We have to bring things from outside to teach it.” I then wanted to see why Amanda thought that was. She said that the reason it is not taught is because of time and standardized testing:

We are so under the gun to raise our scores for our MAPs (Measures of Academic Progress) testing that we have actually cut out a lot of social studies right now.

We used to teach it five days a week and right now we're gonna cut it back to two days a week. We don't teach science until after Christmas because our math and our reading scores are so low that we need to spend more time on that. Big push from the government to get those scores up because we are on the plaus list (a government list for low-performance schools) and we need to get off.

Amanda said that while teaching reading and math are important, cutting science is not properly preparing these students for their future, but she has no say in the matter because of the pressure that she is under to improve her students' reading and math test scores. I found that the average amount of science being taught in her classroom per day per quarter was only 20 minutes. Next I asked Amanda about recycling in the classroom. She informed me that they do not recycle in the classroom because the school is located in such a small community, but the speech pathologist at the school has offered to take each classroom's recycling to a neighboring city to be recycled. However, no one has taken up the speech pathologist's offer. Other than this one instance, Amanda has seen no push from any members of the administration or school board for more EE. Like Grace, Amanda also discussed the students' activities that occur during the week of Earth Day. She said that on one of the days, the 3rd graders go to the local park and do a trash pick-up. However, the very next day, the park is once again filled with aluminum cans and bottles. She dishearteningly said that it is almost as if it is done on purpose. Seeing that Amanda showed a true emotional investment in some environmental issues, I optimistically asked Amanda what she would want to teach more of in her classroom if she had an extra half hour or hour in her school day. Amanda said she would want to do more hands-on science experiments and would like to teach her children more current social studies issues.

I explained to Amanda that the reason I chose to interview teachers at her school is because of the racial makeup of the students as well as their low standardized test scores. I asked Amanda why she believed her school and other schools on Native American reservations performed so poorly on standardized tests. She said that she believed some of the children had fetal alcohol syndrome. She also said that the main reason is that she is always playing catch-up in her classroom and that there isn't much support from the families:

Once they leave the classroom, they're not thinking about letters, numbers, books—nothing. They just basically have to get through their lives. Figure out what they're going to eat, where they're going to sleep, if it's going to be cold. You know, there are just so many other issues for them, living in poverty... you know a lot of violence, a lot of drinking, drugs. It's just like they don't have the resources they need at home.

Amanda explains that the lack of support and discipline from family members has caused her to fight for continual control of her classroom. And that causes her to push through the subjects even if some of the students are behind. However, Amanda explained to me that she has to make her classroom “absolutely delightful” for the entire day so that her students don't have to think about the problems that they face at home. She believes that her students love school for that very reason: they can escape.

Linda

The third teacher I interviewed was Linda. Linda teaches 5th and 6th grade at School B. She has been teaching for 17 years and has 15 students in her class, all of which have Native American descent. Linda scored an 11 out of 12 on the NEETF Survey.

Linda believed her knowledge of environmental issues was a 4 or 5 out of 10. She obtains most of her information regarding the environment from watching the Discovery Channel, reading National Geographic, and from her father. Linda believes that there is sufficient scientific evidence to argue that global climate change is mostly caused by human activity. She does acknowledge that there are trends throughout the world's history that indicate climate change is natural, but she fails to see how humans today could *not* be affecting this current change. Linda says, "I really think that as humans, we have to do our part to take care of that. Will it totally solve the entire problem? I don't know, but it definitely has to impact the problem." When asked what actions Linda personally takes to help the environment, she said that she recycles, keeps all lights off when they're not necessary, watches her family's water usage, and reuses as many materials as possible. Then I asked Linda if she would do more if she had the resources. She said she absolutely would. Linda said that she recently got a new car and wanted a hybrid, but they could not economically justify buying one at the time. However, one of the biggest factors in deciding which car to buy was fuel-efficiency because she lives approximately 16 miles from School B. Linda said that her house is very old, so she uses plastic on the windows in the winter, which she reuses every year, to keep the cold air out of her house. Her and her husband have also discussed getting solar panels for their home.

After receiving all of this personal information, I began to question Linda about EE in her classroom. She explained that she does not teach science in her classroom, but instead her students go to another teacher. However, she said that she does work closely with the Science teacher. I found that the average amount of science being taught to her 5th graders by the science teacher per day per quarter was about 35 minutes. In social studies, Linda teaches about the Industrial Revolution and the creation of automobiles. She said that she spends a lot of time also

discussing the pollution that the Industrial Revolution generated. She said her class participates in the “Town Clean-Up” during Earth day and they recycle the newspaper which they receive every day. They discuss limiting their use of soda cans and bottles, conserving water, and the science teacher even has an entire unit on global climate change. Linda’s father is a Water Supply Specialist and he comes to the school once a year to talk to the 5th and 6th grade classes. His talk ranges from water conservation to pesticides to the effects of pollution on Nebraska’s aquifer. I was pleased to hear some of the different and more in depth topics that Linda’s classes learn about, but I asked her if she thought it was sufficient. She replied, “I think the school’s doing adequate... It’s pretty typical for what schools do for [Environmental] education. But there comes a point with a school, where you have to have community involvement, and I just don’t think we’re going to get that.” She explains that the community should have a recycling center, because while she can teach her students *about* recycling, it doesn’t have any impact when they are not able to *actually* recycle.

I explained to Linda that I chose to interview teachers at her school because of the racial makeup of the students as well as their low standardized test scores. I asked Amanda why she believed her school and other schools on Native American reservations performed so poorly on standardized tests. She explained that the 5th grade is the first time elementary school students take a science standardized test; and they are performing badly on it. Linda explained that this is happening because of the huge emphasis on reading and math in the lower grades and how science is the first subject pushed to the side. Linda then went on to say, “I think that our students come in behind. I mean, when we look at our Kindergarteners compared to Kindergarteners across the board, they’re already extremely low.” She also attributed these low

scores to a huge lack of parental support. However, perhaps the most important and poignant statement that Linda made was this:

This has never been a reservation issue; it's been a poverty issue. We live in poverty. Our students are being raised in poverty. We have very few families that would even be considered middle class in our district. And the ones that are considered middle class – if you look at the scores of their children – are usually pretty comparable and pretty decent... We deal with all of the issues that an inner city school would deal with. People think we shouldn't because we're a small town, but you have to understand the extreme poverty that our children live in.

Because of the mixture of extreme poverty, lack of support, and emphasis on reading and math, Linda explained that her school day revolves around attempting to get her students' standardized testing scores up. She says that her school has become so test-based and so focused on math and reading that she believes the government, administration, and school board see no value in their science and social studies programs. I then asked Linda what she would do in her classroom if she had extra time in her day and could choose what to teach her students. Linda said that she would love to see her students researching topics that they find interesting, whether that is environmental issues or not. She would like to teach her students how to research and then to demonstrate what they have learned.

With all of that being said, Linda was optimistic about the future of the school. She explained that the school has recently started early childhood education programs that will help to get the students on the same level as other students across the state.

|

Diane

The final teacher I interviewed at School B was Diane. Diane teaches 4th grade. She has been teaching for 20 years and has 15 students, all of which are of Native American descent. Diane scored a perfect 12 out of 12 on the NEETF Survey.

Diane believed her knowledge of environmental issues to be a 7 out of 10. She obtains most of her information about environmental issues from reading or the news. Diane said that she tries to recycle as much as she can. She voiced concern about herbicides and pesticides affecting the cleanliness of ground water, but said that it was out of her control. When asked about global climate change, Diane said that it was a topic that she was very concerned about. She acknowledged that the evidence of global climate change is right in front of us and that she believes that we are witnessing global warming as it is happening. I then asked Diane if she would do more for the environment if she had the resources. Diane responded, "You bet." She would get an electric car, fix up her house to make it more environmentally friendly, and invest in solar power.

After obtaining Diane's personal thoughts about the environment, I began to ask her about EE in her classroom. She said that her science curriculum has quite a bit dealing with recycling and reusing materials and there is a speaker that comes in to discuss agriculture and what we can do to support farmers, but other than that, her curriculum does not have much information dealing with environmental issues. I found that the average amount of science being taught to her 4th graders per day per quarter was only about 20 minutes. This number is so low because science is only taught for half of each quarter. Diane's 4th graders don't receive any social studies, but instead learn Nebraska Studies. Diane said that Nebraska Studies does touch on some environmental issues, but none that she can remember. I then asked Diane what she

would teach her students if she had an extra hour in her day. Diane's response addressed the issues that her students face on a day-to-day basis; she said that she would teach life skills:

For our situation at [School B], I would definitely do more life skills: babysitting, staying home alone, cooking. Because so many of my students are home alone without family most of the time until late at night... I think we really need a life skills education class for these kids because they're learning it all on their own.

Diane's response prompted me to tell her my reasoning for choosing teachers at her school to interview. I talked about their low standardized test scores and asked her why she thought their students were performing so poorly. Diane said the main reason is because they don't have parental support: "When we send homework home, there's really nobody there to support them, help them do it, say that school is important." Diane said that she sees that these students are not motivated by themselves or by anyone at home, and that leads to them believing that they don't have to do anything with their lives; that they can stay forever on the reservation.

I then proceeded to ask Diane about standardized testing. She told me that she sees her school moving towards only having an emphasis on test results. She stressed that she no longer has time in her day like she used to: "Before this standardized testing stuff – crap, I like to call it – I could take the kids outside and we could do environmental things, we could do fun science experiments. But we don't have time. All that fun stuff is gone." Diane said that she now focuses so much on one subject at a time, and that subject is chosen based on whether or not there is a test coming up. There is no science test for 4th graders at School B, so therefore science is the first subject to be dropped if there is a crunch for time. Diane then told me about her favorite thing to teach her students: whales. The subject of whales itself isn't the reason Diane enjoys it so much, but instead the way it is taught. Diane blocks out two weeks of her schedule in the year

to learn about whales. They start out the two weeks by reading a story in class about whales. Then each student picks a species of whale to research and then they do a presentation. Next, the students learn about the weight and length of the whale and compare that to the size of the gymnasium at the school. They also learn about what whales eat and how they live in the ocean, which finally leads to discussion about the current state of our world's oceans. Diane enthusiastically said, "I wish I could teach like this all year long because it's wonderful and the kids learn so much more, I think... It's *so* much fun because you can pull in so many other resources." Diane said that this is the lesson she most looks forward to teaching because her students get so excited about learning. She says that her students always ask to go on a field trip to California to see the whales.

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Results: School A

Mark

The first teacher I interviewed at School A was Mark. Mark teaches 5th grade and has been teaching for 22 years. Mark has 12 students in his classroom and all of his students are white. Mark scored a 10 out of 12 on the NEETF Survey.

Mark estimated that his knowledge about environmental issues would be ranked a 7 or 8 out of 10. He obtains most of his information about environmental issues through Internet news outlets or the newspaper. The first subject I discussed with Mark was global climate change. He said that he believes that we, as humans, have to be playing a role in causing global warming. He talked about the Al Gore movie *An Inconvenient Truth* and how after watching documentaries such as that, it is hard not to believe that we are causing some, if not all of what is happening. Mark lives 45 miles from the school in which he works, but said that the only way he justifies not moving closer is because his car averages 40 miles per gallon. When asked what else he does besides driving a fuel-efficient car to help the environment, Mark said that not only does his car get good gas mileage, but he tries to make as few trips as possible. In the summer, Mark says that his car sees almost no mileage except for the occasional family visit. He also said that he and his wife recycle as much as they can. He said that in the city in which he lives, they cannot recycle plastic #5, but he still saves those plastics and then gives them to a friend who lives in Omaha so that she can recycle those plastics for him. If he had the monetary funds, Mark says that he would move closer to the school where he works and then he would walk or bike to work and go back to being a one-car family.

After obtaining Mark's personal beliefs regarding environmental issues, I then asked Mark about EE in his classroom. Mark does not teach science in his classroom, but instead his

students go to the 6th grade teacher, and the 6th graders come to him for math. His students have an hour of science every day throughout the school year. However, Mark believes that the only reason the kids receive this much science is because he is required to teach an hour of math. He also said that his social studies is more history based, so there is not much EE being taught in that subject either. He said that in his reading series, there is some literature that touches on environmental issues, but not much. Mark acknowledged that there is very little information about the environment being taught in his curriculum. However, he said, “Because [environmental issues] important to me, I try to make it somewhat important to the kids.” Mark said that he has recycling boxes in his classroom and then gave examples of how he reuses materials that the kids bring into the classroom such as plastic shopping bags.

I then proceeded to talk to Mark about his daily schedule. Mark said that his day is completely planned out and that he has absolutely no free time to do something different or fun with his students. He then briefly touched on the topic of standardized testing: “I understand the educational push of trying not to leave anybody behind or trying to compete in this ever-changing technological world, but there are so many things that are just as important.” This statement led me to ask him how much preparation for standardized tests played a role in his curriculum. Mark explained how standardized testing used to be 4 consecutive days in the year, but now there are so many tests that are spread throughout the academic year that he feels that all he is doing as a teacher is preparing students to take tests. Mark said, “[These tests have] taken the fun out of teaching and I think it’s taken the fun out of learning... I gotta work my tail off to try and make school seem to be a fun place where kids want to be... It’s not the environment that it was when I first began.”

I then asked Mark what he would teach his students if he had an extra hour in his day. He said that he likes to teach “logical reasoning.” Before his days were so structured, he used to teach the kids to play a lot of games such as chess. “It teaches kids how to think and there’s a lot of skill involved there... It’s patience, strategy, logical reasoning, problem solving. Those are all game skills that you can also apply in real life situations.” Mark said that he has very few disciplinary issues in his classroom. When asked about parental support, Mark said that it depends on the student. He acknowledged that most of his students’ parents are great, whereas others may not view school to be important. Those who he said might not view school to be very important are the “babies having babies.” He said he has seen an increase in the number of teenagers having children in this town, and when he gets those kids into his classes, they are the ones who are not pushed as hard by their family to work their hardest in school.

Anne

The second teacher I interviewed at School A was Anne. Anne teaches 4th grade and has been teaching for 33 years. She has 14 students in her classroom, 2 are Native American and the rest are white. Anne scored a 10 out of 12 on the NEETF Survey.

Anne said that her knowledge about environmental issues could be ranked as a 5 out of 10. She obtains most of her information about environmental issues from the television media and newspapers. When asked whether or not she believes global climate change to be caused by humans, Anne replied, “Yes, I do.” Anne’s interview was quite brief because of how short her answers were. She seemed nervous to expand on anything that she was saying. Anne currently recycles and says that if she had the means, she would buy in bigger quantities to cut down on packaging, buy a more fuel-efficient car, and she would replace the windows in her home. Anne lives in the town in which she teaches.

After these questions, I proceeded to ask Anne about the amount of EE in her classroom. Anne's class is similar to that of Diane's in that her social studies is actually Nebraska Studies. Anne said that in Nebraska Studies, there is a section about wind farms and how more renewable resources, such as wind power, need to be promoted in our state. In the science part of Anne's curriculum, she says the kids learn about erosion and the positives and negatives of agriculture. Anne dedicates, on average, 40 minutes per day per quarter to science. When asked what she would teach her students if she had an extra half hour or hour in her day, Anne said she would like more time for Nebraska Studies and science.

Standardized testing was the next topic I brought up to Anne. She said that a big reason that her day is so structured is because she needs to prepare her students for these tests. Anne explained that teachers are accountable for so much more now than when she first started teaching. Teachers were able to make more of the decisions about what to teach and how long to teach it, but today the district tells the teachers what they must teach. I asked Anne which method she preferred and she said that there is so much more to cover today and that she is much more cognizant about how long she teaches and what she is teaching. She said that math has definitely improved, and that reading is probably better in the long run.

Anne said that she has a very well mannered class and has no problems with discipline. She also said that she sees a lot of parental and community support.

Stacie

The final teacher I interviewed at School A was Stacie. Stacie teaches 6th grade and has been teaching for 10 years. Stacie has 12 students in her class and 1 is Hispanic while the rest are white. Stacie scored a 9 out of 12 on the NEETF Survey.

Stacie said that she would rank her knowledge about environmental issues a 6 out of 10. Stacie said that she obtains most of her information regarding environmental issues from Internet news sources. When asked whether or not she believes global climate change is caused by human activity, Stacie quickly responded, “Absolutely. There is no doubt in my mind that [humans] are causing global warming.” Stacie said that she recycles when she remembers to, but it is not something that she does all of the time. She does not have a recycling bin in her home, but will sometimes hang a plastic bag up to put her cans and bottles in. Other than that, Stacie says that she does not do as much for the environment as she should. When asked whether or not she would do more if she had the means, she excitedly said yes. She said she would love to get a new, hybrid car and would fix up her old home to make it more energy efficient.

After these questions, I moved on to ask Stacie about the amount of EE in her classroom. Stacie teaches both 5th and 6th grade science and she spends an hour on the subject for each grade. In her classroom, she said one of the main things she teaches that relates to the environment is about nature. She said that she most enjoys teaching both grades about biomes and ecological communities. She said that there are also sections regarding recycling, animals, and water. Stacie was short with many of her answers and seemed nervous throughout the interview until we got to topics that she seemed to be very interested in. Something that Stacie said she would like to do with both the 5th and 6th grade classes is to take them to the zoo. After finishing her section on biomes and animals, she would love to take her students to see what the animals’ habitats are really like, “even if they’re manmade.” I asked Stacie what she would like to teach her students if she had an extra half hour or hour in her day and she said more science. She said that she’s lucky that she gets to teach an hour of science each day to both grades, but there is so much more she would like to do. Both the 5th and 6th graders are required to complete

a science project on a topic that they choose and research themselves. All of the students present their projects in a science fair that is open to the public and three or four high school students in the same town judge the students' projects. Two winners from each grade are chosen and then they move on to compete at another science fair with students from neighboring schools. Stacie said that this is her favorite time of the year, but she would like to have more time. She said that many of the students feel rushed with their projects and she thinks that she could see even better results if she were allowed an extra week for the projects.

This lack of time led me to ask Stacie about standardized testing and how it affects her teaching. Stacie said that it absolutely affects her daily schedule. She said that she has become so frustrated with how strictly structured her day is that she feels as though she is leaving some students behind in certain subjects. I then asked about whether or not discipline is a problem in her classroom. Stacie shook her head and said that she thoroughly has enjoyed her classes for the past 4 or 5 years. Of course, there are times that she has to tell them to quiet down, but it never causes her to fall behind in her teaching. Stacie also said that it helps that she has such great parental support from almost all of her parents: "There are always those exceptions, but overall my parents are great. I really see that most of my kids are pushed to do their homework and to perform their best." Stacie's thoughts about her students' parents seem to echo those of Anne's, but not any of the other teachers. This is purely speculation, but it almost seemed as though Stacie was really trying to build up how great her students and parents were for her own personal reasons.

Overall Results

Based on the results of the NEETF Survey and after interviewing all of the teachers, I split up the teachers into 4 groups regarding their attitudes towards the environment. My groupings are as follows:

Great interest in the environment: Linda, Mark, and Stacie

Interest in the environment: Amanda and Diane

Some interest in the environment: Anne

Little interest in the environment: Grace

It was very pleasing to see that 6 out of the 7 teachers I interviewed scored well above average on the NEETF Survey. The summarized survey results are below:

12 out of 12: Diane

11 out of 12: Linda

10 out of 12: Amanda, Mark, and Anne

9 out of 12: Stacie

6 out of 12: Grace

Discussion

After going through all of my interviews, I found that my results were only partially what I expected. The main points I would like to discuss in this section of my thesis is Teachers' Attitudes Towards the Environment, The Effects of Standardized Testing, and Race vs. Economic Status.

Teachers' Attitudes Towards the Environment

One of my hypotheses was that the amount of EE being taught in each class would be somewhat dependent on each individual teacher's attitudes towards the environment. After my interviews, I have concluded that this hypothesis was [not supported](#). I concluded that 5 of the 7 teachers I interviewed had either Interest in the Environment or Great Interest in the Environment, and those teachers, as a collective group, did not teach more EE than the 2 teachers who had only Some Interest in the Environment or Little Interest in the Environment.

I grouped Linda, Mark, and Stacie together saying that they all had a Great Interest in the Environment. However, when asked what they would teach more of if they had extra time in their day, none of them specifically said EE. Linda and Stacie did say that they would like to see more scientific research in the classroom, but Mark said he would teach games that promoted logical reasoning and critical thinking. However, Mark's actions towards helping the environment could not be ignored and he still had a great interest in environmental issues. So even though these three teachers had the greatest interest in the environment, they did not think that EE was necessarily the most important subject not being taught to their students. However, it was promising that two of the teachers said that they would teach more scientific research.

Perhaps the most interesting answer I received to this question was from Diane. Diane was the only teacher to receive a perfect score on the NEETF Survey and she discussed concern

for environmental issues, but she also realized that there were more pressing issues that her students were facing. Diane said that she would teach her students life skills such as cooking, babysitting, and what to do when they are home alone. And after hearing a plethora of stories from the teachers at School B, I would have to agree that there is a desperate need to teach these students the basic skills of how to take care of themselves.

The Effects of Standardized Testing

Perhaps the most obvious trend through my research was the effect that standardized tests had on each teacher's daily schedule. Through my literature review I found that one of the main reasons teachers did not teach EE was because there was not enough time in their day and that was consistent with all of my interviews. Each teacher said that their days are so structured that they do not have the free time to teach anything extra or to extend the amount of time spent on any subject.

When it came to standardized testing, I was most interested in what the teachers who have been teaching for many, many years had to say. Anne said that she no longer "over-teaches," Mark said that the current classroom environment isn't what it used to be, and Diane even called standardized tests "crap." Anne said that there were some positives to the changes that have been made to her classroom because of standardized testing, namely that she is more accountable for her teaching and her students' knowledge of math has improved. But the overall consensus from all of the teachers was that standardized testing just isn't any fun. And while some may point out that *fun* isn't the purpose of school, it is important to address the fact that if a teacher isn't having fun teaching their children, how are the children supposed to have fun learning? Mark said, "I gotta work my tail off to try and make school... a fun place where kids want to be." Mark was caring, attentive, animated, and passionate in his interview. He has been

teaching for over 20 years and he genuinely cares for the well-being and education of his students and yet he is still having trouble making a classroom full of 10-year-olds fun.

This is an issue that I have recently seen addressed on social media. I have seen several friends post a photo from the news website *Business Insider International* on Facebook with a picture of a teacher from Finland. The article that the photo is from is called “26 Amazing Facts About Finland’s Unorthodox Education System” written by Adam Taylor (2011). The photo has the caption, “A teacher in Finland explains why her country’s schools system is the best in the world: ‘We pay teachers like doctors, students enjoy over an hour of recess, and there’s no mandatory testing—the opposite of what America does.’” According to the article, Finland spends 30 percent less per student than the United States, and yet 96 percent of Finns graduate high school and 66 percent go to college (2011).

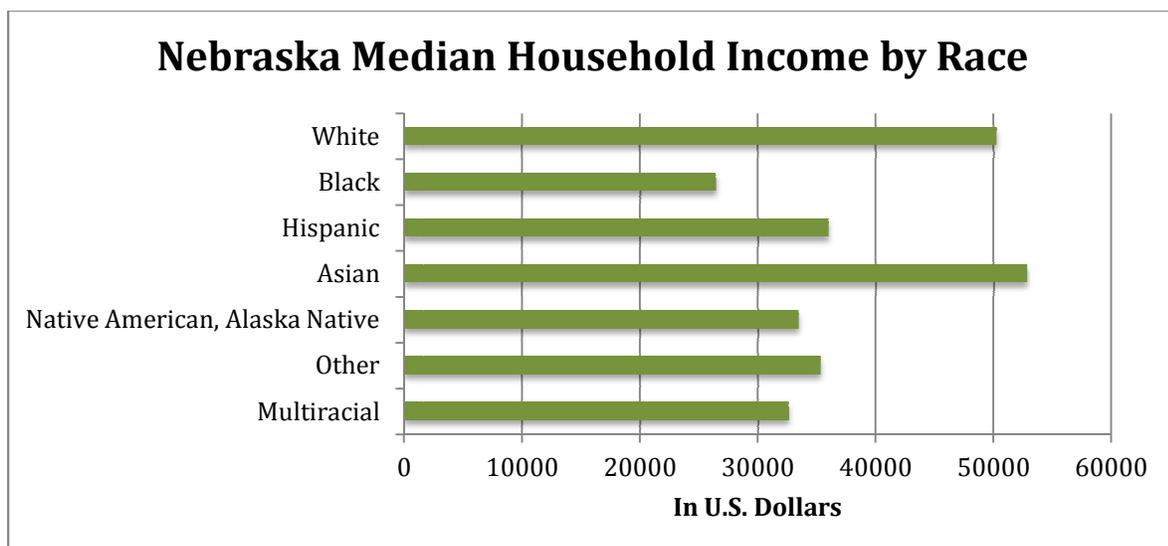
The debate over the effectiveness of standardized tests is not one that is likely to die down in the near future. And it seems to me that the people who should have the biggest say in how American children should be taught are the ones who are the first to be silenced: teachers. Although some voiced more concern than others, all of the teachers I interviewed agreed that while the intention of implementing standardized testing into schools across America was good, the actual outcome has been a failure. Teachers who have been teaching for 20 or 30 years are saying that they are seeing their school system fail because of standardized testing, but they are helpless to do anything to help.

It is obvious to see that teachers have no time in their day to teach anything that is not assigned to them by their school district. And the school district, though not to be faulted for this, are only concerned about raising national and state standard test scores. Therefore, the lack of

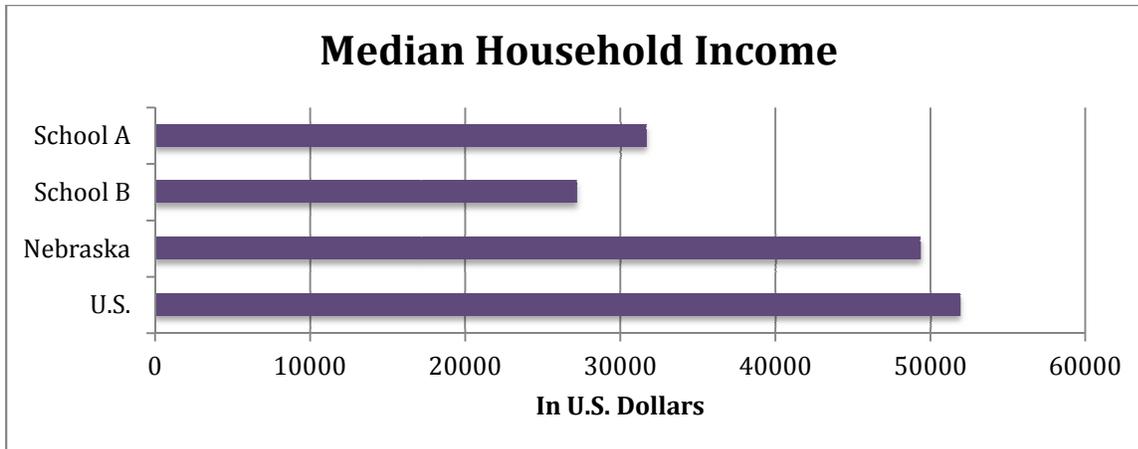
time available in a teacher's day because of their preparation for standardized tests is to blame for the lack of EE in these two schools.

Race vs. Socio-Economic Status

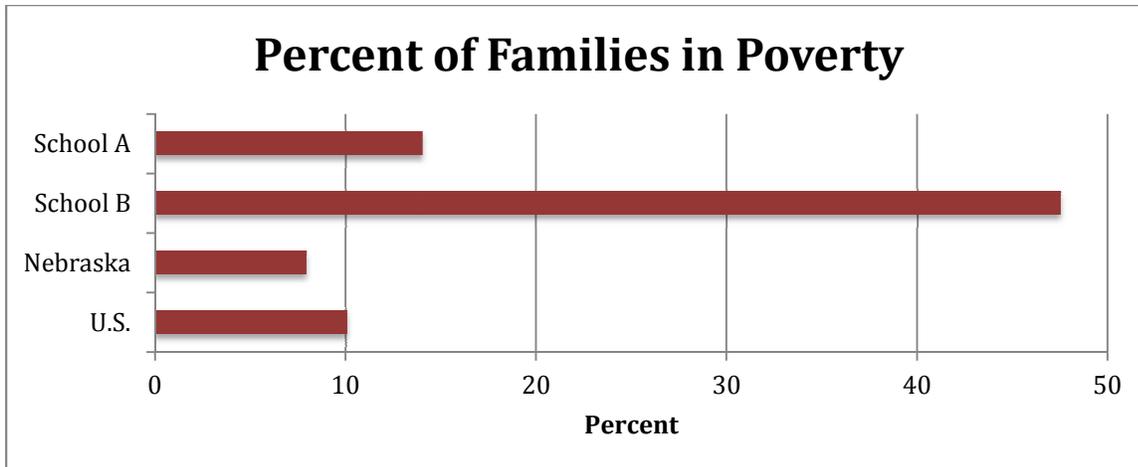
Perhaps the best statement I heard from any of my interviewees was from Linda: "This has never been a reservation issue; it's been a poverty issue." This statement caused some distress for me. I, at first, believed that she was absolutely right. The fact that her students are Native American has nothing to do with their poor test scores. There is no gene found in American racial minorities that causes them to be less intelligent or less able to retain information than white students. However, as much as we would like to believe that race and socio-economic status are mutually exclusive, research indicates otherwise. My previous sources indicated that it is ultimately socio-economic status that causes students to underperform, however, we cannot ignore the fact that the majority of those who are in low socio-economic standing are of a racial minority. The two, sadly, go hand in hand. Located below is a graph of 2010 Nebraska Median Household Incomes by race as found by the American Community Survey (ACS):



According to data collected by the ACS between 2006 and 2010, the median household income in the town in which School B is located is \$27,188; that is over \$22,000 less than the Nebraska average and nearly \$25,000 less than the country's average. The median household income in which School A is located is \$31,667. This information can be seen in the following graph:



47.6 percent of families in living in the town where School B is located are living in poverty; Nebraska's average is only 8 percent and the United States' average is 10.1 percent. School A's town's statistics are also worse than the state and national averages: 14.1 percent of families are living in poverty. So while both towns see above-average levels of poverty, the poverty in School B's town is extreme. The huge discrepancy between School B's town can be easily seen in the graph on the following page:



So while race does not directly influence the test scores of the schools where I have done interviews, race *does* directly influence socio-economic status and socio-economic status directly influences students' performances. 3 of the 4 teachers I interviewed at School B expressed experiencing difficulty with their students because of their socio-economic status and lack of familial support. That being said, I have to say that my hypothesis of race influencing the amount of EE offered in the classroom has been proven untrue. Race and socio-economic status affect students' performance, but it does not affect EE. The problem of this huge lack of EE in these two school's classrooms seem to lie solely in a lack of time due to preparation for standardized testing.

Conclusion

After all of my research was completed and I compiled all of my results, I was disheartened. Not only is EE lacking in these schools and across the state and nation, but Science and Social Studies are being cut at an alarming rate. Schools and their administration and teachers are under so much pressure to raise their students' performance on reading and math standardized tests that their students are now falling behind in other subjects. These students will never understand the importance of science and social studies because on some school days they aren't learning a single thing about either of them. While math and reading are obviously extremely important, it is imperative that we do not simply push science and social studies to the side.

I wish that I could somehow broadcast the story about the school in Molokai, Hawaii. This environmental program proved that the integration of EE into a school could have astounding results. Students' academic scores improved and perhaps more importantly, family and community involvement skyrocketed. Molokai is a rural island with a mostly Native Hawaiian population, many of which are living at or below the poverty level. Sound familiar? But this program brings up another issue; this was an after school program. And it seems as though an after school program is the only way students are going to learn more about science and the environment.

If I were to change the way I conducted my study, I would have interviewed teachers at more schools. I am interested to see the amount of EE at larger schools in an urban and suburban area. I have an inkling that my results will be similar no matter where I interview, but it would be very interesting to get those results. I also think it would be beneficial to examine the amount of EE that is occurring outside of the classroom. Are after school programs doing enough to

substitute for the lack of EE inside of the classroom? Or are our after school programs lagging behind as well. As I have previously stated, the island of Molokai in Hawaii has shown how successful an after school program with an emphasis on environmental issues can be.

Unless the current state of education drastically changes, teachers are still going to have their days planned for them by their administration and school district. Science, social studies, art, and music are going to continue to be cut. Not only are the students going to suffer the consequences, but also we as a country and as a world will feel these ramifications. Science education is a necessity in today's schools and so are social studies, art, and music. We should be putting an emphasis on having well-rounded students who are exposed to as many subjects as possible.

If my research has helped me to see anything, it is this: Our world is currently experiencing global climate change, rainforests are being destroyed, our oceans and waterways continue to be polluted, animals are going extinct before our eyes, entire cultures and languages are disappearing every day, and yet we are forcing students to ignore these issues at a crucial time in their lives when they develop their interests for the future all for a test score. It is of the utmost importance that we teach environmental education, science, and social studies to students at an early age so that we have the opportunity to create educated adults who make educated decisions that can help improve the current state of our world.

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