IPRO 331: Global Warming and Community Outreach

1. Abstract

There is a lot of information about global warming going around these days. Which information is reliable, and which information is made up by the media because it will draw attention or has some sort of political tie? This is one of the major issues that this IPRO wanted to tackle. We have gone through a lot of information about the issue of global warming and made a presentation using reliable resources that is easy for our audience to understand. We then found schools in the Chicago area that were interested in learning more about global warming, and gave them our presentation.

2. Background

A. There is no sponsor for this IPRO.

B. The problem is that the public may not be as informed about global warming as they could be. Everyone has heard about global warming, but do they really know what it is? Do they know it's causes, effects, and things that can be done to minimize the effects of global warming? If people are interested in learning about global warming, how do they know if they are reading facts or propaganda from someone who has an agenda. We wanted people in our community to get educated about global warming with scientific facts about the problem.

C. The idea that global warming was occurring came about in the early 1900's by German scientist Guy Stewart Callendar. He was the first person to compile international temperature recordings from other scientists. He found that the earth's temperature had risen by as much as half a degree Celsius between 1890 and 1935. He was also the first person to propose that burning fossil fuels was leading to the greenhouse effect. In 1988 the Intergovermental Panel on Climate Change (IPCC) was established. In 1990 it released a report saying that the temperature of the earth had risen, however, they did not know if it was from natural causes or from industrialization. In 2007 the IPCC released a report saying that the serious effects of global warming have become evident.

D. This is the third? Semester that this IPRO has been at IIT. The first semester focused on gathering research about global warming and making a presentation. The second semester took the topic of global warming and broke it down into four more manageable subgroups; the polar regions, carbon dioxide, biofules, and solar power. They created presentations from each of these topics. They also did a presentation at De La Salle high school.

E. We wanted to do pre and post tests for each of our presentations to see how much we were teaching people. In order to give a survey we had to get permission from the Institutional Review Board (IRB). We had to give them information about why we

wanted to do these tests and also the actual questions on the test for them to review. Anyone that we present to who is under the age of 18 that we want to fill out the pre and post tests must have a parent sign a waver, which we also had to write and get approved by the IRB.

3. Objectives

- Make sure our presentations are based on scientific facts. This includes using reliable resources and not presenting any biased information to our audience.
- Present to a variety of different audiences. For example schools, nursing homes, libraries, local clubs, etc.
- Create different presentations for our different audiences. For example, a presentation to sixth grade students will not be as technical as a presentation to members of a college chemistry club. Also when we present to different audiences we will have a different presentation style. Sixth grade presentations will be more interactive, asking the kids questions during the presentation to keep their interest. For the chemistry club we can just lecture about our information.
- Conduct pre and post surveys to see how much our audience is learning from our presentation. This includes getting IRB approval and parent permission if an audience member is under the age of 18.
- Create a list of possible contacts for the next IPRO team so they can get started on outreach right away.

4. Methodology

A. Solar power- Jonathan Lockridge
Wind power- Mark Reibel
Carbon Dioxide- Melissa Voss and Nim Patel
Polar Regions- Sara Wilde and Satchel Erramilli
Fossil Fuels- Ashley Hodgson
Biofuels- Marc Huh

B. September 19th- Project Plan turned in.
October 10th???-Midterm Presentation
October 31st-Presentation at McArthur Middle School
November 17th- Presentation at DePaul
November 18th- Presentation at DePaul
November 19th- Presentation at Schaumberg High School
November 20th- Presentation at Chicago Bee Library
November 21st- Presentation at Whitney Young High School
November 21st- Presentation at IIT for Science Chicago
December 5th-IPRO Day

C. See attatched pre and post surveys

5. Team Structure and Assignments

The Team structure for presentations was broken down into four subgroups: Carbon Dioxide (Nim, Melissa), Polar Regions (Satchal, Sara), Solar/Wind Energy (Jonathan, Mark) and Biofuels/ Fossil fuels (Marc, Ashley). Our team leader was Jonathan and he made sure everything ran smoothly and oversaw when needed. Ashley was in charge of keeping the calendars up to date with outreach dates to avoid scheduling conflicts. Melissa took care of the minutes of each meeting to ensure efficient use of time and that the group completed the agenda of each meeting. Marc took care of the website and all updates that needed to be made. The rest of the team took responsibility for a particular outreach as well as certain deliverables.

A. Explanation of changes from the project plan
   No real changes were made from the project plan except the addition of a webmaster (Marc). The team had not decided on a website when the project plan was compiled.
B. Descriptions of what each member contributed:
   (*Italics show outreaches for the next semester)*

Satachal Erramilli
Ice Caps
Midterm presentation
IRB
Code of Ethics
Sweitzers - Global Warming Speakers
Walter Payton HS
Nequa HS
Fermilab

Melissa Voss
CO_2
Brochure
Minutes
Email address creation
Final Presentation Slides
North Side Prep

Marc Huh
Biofuels
Website
IRB proposal
Project Plan
Pre/post surveys
Give aways (bags and pens)

Sara Wilde
Ice Caps
Project plan

Final report

Ashley Hodgson
Biofuels/Fossil Fuels
Calendar
Midterm Slides
Pre/post surverys for SHS
NSBE
Schaumburg High School
Schaumburg High School (next semester)

Jonathan Lockridge
Solar Power
Team Leader
Whitney Young High School

Mark Reibel
Wind Power
Powerpoint management
Project Plan
IPRO Day Poster
DePaul (2 presentations)

Nim Patel
CO_2
IRB proposal
Final Report
Chicago Bee Library
Oak Park Arms

6. Budget

Services: Requested: $300
Approved: $150
Used: $ 105
Printed color brochures, copies of pre/post surveys
Printed fliers for outreach events
Fliers ($35)
Brochures ($70)

Travel Requested: $100
Approved: $100
Used: $ $116

Traveling to Schaumburg High School ($116 IGO)

Participant	Requested: $100 Approved: $100 Used: $ $0 Canvas Sustainability bags (admissions office contribution) IIT pens (admissions office contribution)

7. Results

What did the team learn?

-strategies for talking to different audiences
- planning ahead of time
- know your audience / be able to relate to them)
- marketing strategies (We should have advertised some presentations so we would have gotten a better turnout.
- improved public speaking skills
- global warming facts
- alternative views on global warming (i.e. solar flares)

A. Research findings

The pre and post survey questions were analyzed for the different outreach locations to analyze the effectiveness of our presentation of global warming. The surveys were scored out of 8 points. At Schaumberg high school about 86% of the 100 participants scored 6-8 on the pre-surveys which increased to 99% post presentation. At DePaul University 69% of the 36 participants scored in the 6-8 range on the pre-survey, which increased to 77% on the post-survey. The most drastic results were seen at MacArthur Middle School where the 6-8 range jumped from 21% to 42% from pre-survey to post-survey. Our research shows the presentations did increase the understanding of global warming for a wide range of audience from middle school to university level.

B. Accomplishments

The IPRO 331 team went to seven outreach sites and gave 13 presentations. It is estimated that a total audience of over 400 people were reached from these presentations. The team took previous IPRO's presentations updated and organized the information to create a comprehensive presentation of the topics (CO_2, Ice Caps, Fossil Fuel, Bio Fuels, Solar Power, Wind Power). A brochure that explained who we are, our purpose and information about our presentations were created to show prospective audiences. A website that offers links to additional information about the topics, the IPRO and its members was created. An IPRO email address was also created to allow for more professional contact with audiences.

C. Objectives Met and Not Met

The main objective of this IPRO is the outreach, doing presentations for the community on global warming. The Fall 2008 IPRO was able to get many more outreach presentations done than any of its predecessors. However, more presentations could have

been done earlier in the semester. Another goal was to create a mean of contact and provide resources for audiences to go to the presentations. This was accomplished by having an email address and website with links to resources. It was desired to have a kids section on the website but this was not accomplished due to time constraints.

D. Ethical, Moral, Cultural and Scientific Issues that occurred

Some of the ethical and moral issues faced were those involved in giving the pre-post surveys. The group followed the IRB rules about obtaining parental consent for minors, what types of questions could be asked and what could be done with the answers. Also, care had to be taken to ensure that all the information presented was from reliable sources and that the information was not claimed as our own research. Another moral issue was to avoid including any politics and any biased information in the presentations. Also, it was the responsibility of the team to provide information that was relevant to their audience by avoiding technical terms for an audience that may not have the appropriate background.

8. Obstacles

A. Challenges encountered while completing tasks

Global warming has plenty of sites, books and other resources available but a problem arises when trying to sort and organize the facts for a time constrained presentation. Also problems arose in trying to schedule with potential outreaches due to student class schedules, presentations sites and times, as well as just maintaining communication with them. A difficulty faced was in handling misconceptions that the public often has about the topics. It was very important to make sure no biases were presented in the information for audience because the desire is not for any agenda but basic understanding of what global warming is and what's available.

B. Overcoming the challenges

The team always had to struggle with the mass amounts of information and had to use their own discretion for what audiences would be interested in, what would be comprehendible and what the time constraints allowed for. When it came down to scheduling the team decided to write scripts which allowed any member to present so that whoever could attend a presentation could discuss all the topics. When it came to handling the misconceptions the team would offer its own understanding of the information but understood that other views also exist. Also by making sure that all the information presented was supported by research and thereby avoiding biases.

C. Methods to reducing/preventing challenges

By looking at reliable well known sources there is a bit less information to filter through when compiling presentations. Scheduling conflicts will always remain but as long as student willing to be flexible fewer problems will occur. Biases can easily be prevented by the same means mentioned earlier.

D. Advice for next IPRO

The next IPRO should try to read up on the information that opposed global warming. Also its important the IPRO start outreach with full force very early on so that scheduling conflicts can be avoided.

9. Recommendations

We recommend that the group for next semester start finding places to do presentations earlier in the semester. A lot of the people that we contacted said that they would want to hear a presentation during the spring semester. Making the presentations is fairly easy since there are presentations from previous semesters to go off of. The hard part is finding people who want to hear your presentation, so start early!

Maybe present some alternative theories about global warming. Our group focused on carbon dioxide as the main cause of global warming. Some people think that solar flares are the cause of global warming. Maybe explore this second alternative more for next semester.

10. References

BBC- Climate Change http://www.bbc.co.uk/climate/

Environmental Protection Agency http://www.epa.gov/climatechange/

National Resources Defense Council http://www.nrdc.org/globalWarming/

Intergovernmental Panel on Climate Change http://www.ipcc.ch/

11. Resources

We did not keep timesheets, but it is estimated that each member spent 10-15 hours outside of class working on IPRO related tasks. We also spent XXX.

12. Acknowledgements

We would like to say thank you to the following places that allowed us to present to them: McArthur Elementary School, DePaul, Schaumberg High School, Whitney Young High School, Chicago Bee Library, IIT.

Pre-Survey

Please answer the following questions

1. *What causes global warming?*

2. *Is global warming a good thing? Why or why not?*

3. *What are the effects of global warming?*

4. *What are some ways that you think can prevent global warming?*

5. *Please place a check next to all the sources that have informed you about global warming*
   ___*Books*
   ___*Magazines*
   ___*Movies/Documentaries*
   ___*Word of Mouth*
   ___*Internet*
   ___*Newspaper*
   ___*Television*

Post Survey
Please Answer the Following Questions

1. What is the difference between solar energy and solar power?

2. What are the two primary ways in which solar energy is used?

3. Do you think Illinois should take advantage of the wind energy that is available to us? Why or why not?

4. If you could get much cheaper energy for your house from wind energy, but had to build a wind turbine in your backyard, would you? Why or why not?

5. What do you think we could do to reduce dependence on fossil fuels?

6. Do you think biofuels are a good alternative to regular fossil fuels? Why or why not?

7. What is the relationship between global warming and sea level rise?

8. Where does carbon dioxide come from? What are some sources of carbon?

PARTICIPATION CONSENT FORM FOR *Global Warming Outreach* STUDY

Principal Investigator: Peter Lykos, PhD
Investigators: Illinois Institute of Technology Interprofessional Projects Team 333

OVERVIEW AND PURPOSE

Illinois Institute of Technology is a four-year, degree-granting research university. The university frequently conducts studies of educational significance. The purpose of this study is to investigate middle school students' preferences for educational computer games.

PROCEDURE

- Your child will fill out a short questionnaire about their knowledge of global warming.

- Your child will observe a 50 minute presentation about global warming, and will be asked to comment about the different aspects your child enjoyed or learned about the presentation.

RISK, STRESS, OR DISCOMFORT

This study will not expose its participants to risk, stress or discomfort beyond that normally encountered in a normal classroom.

OTHER INFORMATION

The data collected from the surveys will be anonymous. Students will not be required to write or state their name during the surveys or presentation. No one other than the investigator named above and the members of the user experience team will be informed of or have access to data on the performance of individuals. You and your child are free to refuse to participate in the study and may withdraw at any time without penalty.

CONSENT

The study described above has been explained to me, and I voluntarily consent to allow my child to participate in it. I have had an opportunity to ask questions and understand that future questions I may have about the research or about participants' rights can be answered by Dr. Peter Lykos at 312-567-3430 or through my child's teacher. I understand that IIT is not responsible for any injuries or medical conditions my child may suffer during the time s/he participates in this study, unless they are due to IIT's negligence. I may address questions and complaints to Director of Research Compliance, Glenn Krell at 312-567-7141. This consent form is valid only if stamped by Executive Officer of IIT IRB. I have received a copy of this consent form.