

This article was downloaded by: [Florida Institute of Technology]

On: 21 April 2014, At: 10:55

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Applied Environmental Education & Communication

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/ueec20>

Thai Youths and Global Warming: Media Information, Awareness, and Lifestyle Activities

Kanchana Chokriensukchai^a & Ritendra Tamang^a

^a Department of Radio and Television Broadcasting, The University of the Thai Chamber of Commerce, Dindaeng, Bangkok, Thailand
Published online: 13 Sep 2010.

To cite this article: Kanchana Chokriensukchai & Ritendra Tamang (2010) Thai Youths and Global Warming: Media Information, Awareness, and Lifestyle Activities, Applied Environmental Education & Communication, 9:3, 198-208, DOI: [10.1080/1533015X.2010.510028](https://doi.org/10.1080/1533015X.2010.510028)

To link to this article: <http://dx.doi.org/10.1080/1533015X.2010.510028>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

Thai Youths and Global Warming: Media Information, Awareness, and Lifestyle Activities

Kanchana Chokriensukchai and Ritendra Tamang, *Department of Radio and Television Broadcasting, The University of the Thai Chamber of Commerce, Dindaeng, Bangkok, Thailand*

This study examines the exposure of Thai youths to media information on global warming, the relationship between exposure to global warming information and awareness of global warming, and the relationship between that awareness and lifestyle activities that contribute to global warming. A focus group of eight Thai youths provided information that was used to construct a questionnaire, which was administered to 2,500 Thai youths. In-depth interviews with academics and mass communication experts were also conducted. The study took place from early 2008 to mid-2009 in various parts of Thailand. Analysis of the questionnaire responses indicate that most of the Thai youths in the study obtained information about global warming primarily from television; often, however, they do not understand the information.

INTRODUCTION

The term *global warming* refers to the increase in the average temperature of the Earth's oceans and near-surface air, and the projected continuation of this increase. The global surface temperature has been increasing for the past 100 years. Scientists believe that human activities have altered the climate, substantially destroying and fragmenting natural habitats.

Most notable is the global warming caused by greenhouse gases—gases that allow direct sunlight (relative shortwave energy) to reach the Earth's surface. Human-induced greenhouse gases include chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs), as well as sulfur hexafluoride (SF₆). Atmospheric concentrations of both natural and man-made greenhouse gases have been rising since the industrial revolution, as the global population has increased and our reliance on fossil fuels (e.g., coal, oil, and natural gas) has become solidly established. Although gases such as carbon dioxide occur naturally in the atmosphere, through our interference with the carbon cycle (by burning forest lands, and by mining and burning coal), carbon is moved from solid storage to its gaseous state, thereby increasing atmospheric

Address correspondence to **Kanchana Chokriensukchai**, Department of Radio and Television Broadcasting, The University of the Thai Chamber of Commerce, 126/1 Vibhavadee-Rangsit Road, Dindaeng, 10400, Bangkok, Thailand. E-mail: kanchana.cho@utcc.ac.th

concentrations (National Climatic Data Center, 2009).

Information about global warming has been increasing over the past 20 years (Corbett & Durfee, 2004). The dissemination of global warming information is described in an article by McCright and Dunlap (2000); these authors report that of the documents on global warming in their study sample, none had been produced in 1990, and only a few were produced each year from 1991 to 1995. In 1996, 33 such documents were produced, more than all the previous years combined. A staggering 166 documents on global warming were produced in 1997. Concomitant with these rapidly increasing numbers, brief press releases and op-ed essays replaced lengthy books and policy studies as the most prevalent types of documents produced. Of the 27 documents produced between 1990 and 1995, 23 (85%) were books, chapters in books, or lengthy policy studies. Only 21% of the 197 documents produced in 1996 and 1997 were these types of publications, while 45% were shorter news releases or op-ed essays (pp. 508–509).

Our own literature analysis revealed that only one document on global warming was produced in 1990, whereas in 1991 and 1992 a few conservative think tanks, notably the Marshall Institute, produced nine documents: two books, six policy studies, and one article in a think tank magazine. In the three years following the UN Conference on Environment and Development (UNCED; Rio de Janeiro, Brazil, June 3–14, 1992), there was a relative decline in the numbers of new documents on global warming. Increases in the production of almost all types of documents on the topic occurred in 1996 and 1997, on the verge of the third Conference of the Parties (Kyoto, Japan, December 1–7, 1997), where the threat of internationally binding action loomed. However, the general pattern was that a growing number of conservative think tanks began to produce more documents of shorter length that downplayed the extent and dangers of global

warming. In short, as the stakes rose on the verge of the Kyoto conference, the conservative movement stepped up mobilization efforts to challenge the legitimacy of global warming as a problem.

THE EFFECTS OF GLOBAL WARMING ON THAILAND

Thailand is primarily an agricultural nation; water resources are therefore among the most important resources for its development. Water shortages and prevalent drought conditions would constitute major threats to Thailand's agricultural output. The cultivation of cash crops has typically been faced with challenges such as a shortage of land suitable for growing corn. In recent years, yields per unit of land have decreased as a result of changes in rainfall patterns and the resulting drought conditions.

In 1991, Thailand experienced a gap in rainfall as well as severe hot weather and drought, followed by a long period of increased humidity in northern Thailand. These conditions caused a severe outbreak of neck blast in RD6 rice, especially in Chiang Mai and Lamphun provinces. Although the environments of these provinces are conducive to the spreading of such diseases, the country had never experienced such an outbreak before (National News Bureau of Thailand, 2009).

In addition to being vulnerable to the effects of global warming, Thailand is contributing to the human-induced global warming. In 2008, Thailand used 22,000 megawatts of electricity produced from the burning of fossil fuels such as coal, natural gas, and petroleum. Each year Thailand produces approximately 322 million tons of gas from burning fossil fuels. Use of electricity increases by 6% to 8% per year, leading to the construction of more power plants; it is estimated that by 2012, the burning of fossil fuels in Thailand will produce up to 418 million tons of gas (Electricity Generating Authority of Thailand, 2009).

LITERATURE REVIEW AND HYPOTHESES

Agenda Setting: Media Information and Awareness About Global Warming Among Thai Youths

Using agenda setting theory as its basis, this article examines how Thai youths are influenced by media information about global warming. The original agenda setting hypothesis proposed a moderate media influence on social cognition, that is, how individuals learn about the important issues of the day. Extensive media coverage provides media consumers with salient cues regarding the relative importance of such issues. Agenda setting has been the focus of hundreds of systematic studies, the vast majority of which have found support for the idea that the public learns the relative importance of issues from the amount of coverage given in the news media.

As far back as 1922, the newspaper columnist Walter Lippman (1992) observed that the media had the power to present images to the public. Decades later, McCombs and Shaw (1972) investigated presidential campaigns in 1968 and 1972; their 1968 study focused on two elements: awareness and information. McCombs and Shaw concluded that the mass media exerted a significant influence on what voters considered to be the major issues of the campaign. Other studies produced similar results. For example, Wanta, Golan, and Lee (2004) investigated the agenda setting function of mass media and found a relation between the actual content of the media messages used during a political campaign and what voters in one community said were the important issues in the campaign. Salwen and Matera (cited in Wanta et al., 2004) found correlations between foreign news coverage and public opinion; these correlations suggested that international news coverage does indeed have an agenda setting effect. Furthermore, international news reports, especially conflict-related stories and

concrete presentations, had a strong effect on American public opinion (Wanta & Hu, cited in Wanta et al., 2004, p. 366), and attention to foreign affairs news presented on television was a better predictor of positive perceptions of nations than simple exposure to newspapers (Semetko, Bi'zinski, Weaver, & Willnat, cited in Wanta et al., 2004, p. 366). Similarly, McNelly and Izcaray (1986) found that news exposure was significantly related to positive feelings toward countries and to perceptions of those countries as successful.

In the context of the present study, agenda setting is the creation of public awareness about global warming in Thailand. Because global warming is a major issue, it has the potential to capture the awareness of Thai youth, who constitute a large portion of the Thai population, and to influence these youths to change their lifestyles in a way that will slow global warming.

For this to happen, however, the media must identify climate change or global warming as a newsworthy issue, because "for most citizens, knowledge about science comes largely through mass media, not through scientific publications or direct involvement in science" (Corbett & Durfee, 2004, p. 130). Communicating scientific findings through the mass media requires a reporting format tailored to the receiving habits of the audience. One way to do this is to translate abstract scientific findings into a sequence of events, so that scientific and political discourses on climate can be transformed into depictions of *past*, *current*, and *future* events. The media can facilitate the representation of the highly complex and abstract interrelationships of the anthropogenic influence on climate. For example, by differentiating distinct points in time and reducing the interrelationships to discrete events, they can help recipients to perceive a coherent development. Also, the media should link climate research coverage to individual behavior such as power consumption. Audiences need to be made aware of the relevance of their own behavior to climate change, as well as the immediacy of climate change as a global environment problem

(Weingart, Engels, & Pansegrau, 2000). Nisbet and Myers (2007), in their analysis of public opinion polls conducted over a 20-year period, find that media attention to the issue of global warming has had a significant impact on public awareness. However, they conclude that the level of public awareness is not high enough, even in a country like the United States that has a literate population exposed to mass media. Nisbet and Myers's observations underscore the need for media coverage of the issue in a manner that is easily understood by the general public. These authors point out that

twenty years after scientists and journalists first alerted the public to the potential problem of global warming, few Americans are confident that they fully grasp the complexities of the issue, and on questions measuring actual knowledge about either the science or the policy involved, the public scores very low. (p. 447)

Other researchers have arrived at a similar conclusion. According to Stamm, Clark, and Eblacas (2000, p. 219), "surveys of public understanding of [global warming] and other surveys of environmental problems typically find to be lacking, while studies of media effects conclude that media have little or no effect, or even that they contribute to misunderstanding." Nonetheless, Stamm et al. maintain that "despite these shortcomings, the extensive media coverage of environmental problems is not entirely a futile effort" (p. 220).

Relationship Between Thai Youths' Awareness of Global Warming and Lifestyle Activities That Contribute to Global Warming

Studies show that people tend to change their attitudes toward an issue in accordance with the information they receive from the media. For example, Nghamkao (2000) studied the relations among media exposure to traffic rules and Bangkok pedestrians' knowledge of, attitude toward, and compliance with these rules; the results indicated a correlation be-

tween exposure to specialized media (designed specifically for pedestrian education), attitudes toward traffic rules, and compliance with traffic rules. Similarly, a study focusing on the public relations strategy of a sea turtle conservation project showed a positive correlation between awareness of the project and participation in conservation efforts (Vorawansetha, 2003). Results of another study indicated a positive correlation between energy saving behavior and exposure to advertising and information produced as part of an energy conservation campaign, and between energy saving behavior and awareness of energy conservation (Wangchingchai, 2003). Accordingly, we hypothesized that for Thai youths, exposure to information about global warming would lead to awareness of the issue, and that such awareness would lead to changes in the youths' everyday lifestyle:

- H₁. Thai youths' exposure to global warming information will have a relation with the youths' awareness of global warming.
- H₂. Thai youth's awareness of global warming will have a relation with lifestyle activities that contribute to global warming.

OBJECTIVES

The purpose of this research is to study Thai youths' exposure to information about global warming, the youths' awareness of global warming, and their adoption of lifestyle activities that contribute to global warming. Our objective is to investigate the relations among these phenomena: first, the relation between Thai youths' exposure to global warming information and their awareness of global warming, and second, the relation between Thai youths' awareness of global warming and their lifestyle choices that are related to global warming.

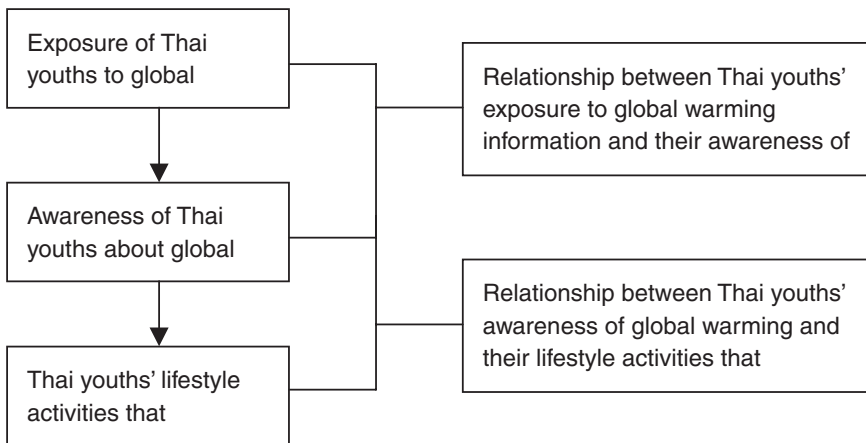


Fig. 1. Model of the study objectives.

Figure 1 displays a model of the study objectives.

METHOD: SAMPLE AND DATA COLLECTING

Sample

Our quantitative study collected data from a questionnaire administered to 2,500 Thai youths. Preliminary information was collected from a focus group comprising eight randomly selected Thai youths between the ages of 13 and 15. The focus group provided information about Thai youths' media exposure and lifestyle, which was then used to construct a questionnaire for a large-scale survey of middle-school students (ages 13–15) in Thailand. The study sample was chosen using multistage cluster sampling. Respondents were randomly selected from 2,889,357 middle-school students from a pool of middle schools in five regions of Thailand. Prior written approval was obtained from the school principals and the teachers from whose classes the sample was drawn. Of the 2,500 respondents in the sample, 806 (32.24%) were boys and 1,694

(67.76%) were girls; 728 (29.12%) were 13 years old, 876 (35.04%) were 14 years old, and 896 (35.84%) were 15 years old. In-depth interviews with eight experts—two lecturers in mass communication, two scientists, one nongovernmental organization (NGO) representative, one environmental news reporter for a Thai TV station, and two producers of TV documentaries (for National Geographic and TV Bhurapa Co. in Thailand)—provided suggestions for solving the problems indicated by the questionnaire results.

Data Collection

The questions used for the focus group were guided by a review of the literatures on youth lifestyle and the effects of global warming. A questionnaire was constructed according to the responses of the focus group and comprised 122 questions in seven parts. The overall alpha of the questionnaires was .9066. For the interviews with experts, each interviewee was presented with questions relevant to his or her area of expertise. Percentage, mean, and standard deviation were used to analyze Thai youths' exposure to information about global warming and their awareness of global warming. Pearson Product Moment Correlation was used

to analyze data regarding the relation between exposure to global warming information and awareness of global warming, and also the relation between awareness of global warming and lifestyle activities relevant to global warming. In addition, a *t*-test was used to compare the awareness of youth in Bangkok with the awareness of those in outlying areas.

Questions for the focus group covered such topics as the mode of transportation used by the respondents to go to school, the type of school they attended, the grades they got in school, and how they spent their time outside of school. The respondents were also asked questions about their TV-watching habits (such as whether they watched TV alone or with family, and the type and length of programs they watched), how they perceived environmental news, how they saved electricity and protected the environment, whether they knew about global warming, and the specific environmental programs they watched on TV.

The respondents from NGOs were asked questions relating what they do to address national disasters and make people aware of such disasters; the level of public consciousness and ways to improve it; aspects of the lifestyle of Thai people and youth that can have an effect on the environment and global warming; government programs to address environmental concerns; the role of mass media in protecting the environment and in making people aware of the environment, global warming, and the need to change their behaviors; the role of opinion leaders in remote areas; and how Thai youth can be made aware of global warming issues.

We asked the drama producer for personal opinions about the environment, as well as whether the producer planned to produce or would consider producing programs with environmental themes for a juvenile audience. The respondents involved in National Geographic and TV Bhurapa documentaries were asked questions about the role of mass media in protecting the environment, in promoting environmental and global warming issues among Thai youth, and in encourag-

ing Thai youth to help solve the global warming problem.

The head of the Thailand Greenhouse Gas Management Organization was asked about the government's policy on greenhouse gas issues and how to promote awareness of environmental and greenhouse gas issues among Thai youths. We asked university lecturers on mass communication questions about how to select appropriate mass media and how to produce media programs to raise public awareness about environmental issues.

RESULTS

Thai Youths' Exposure to Media Information on Global Warming

In Thailand, information about global warming is presented mainly on the TV documentary channel. Although most of the Thai youths in the study had a low level of exposure to TV programs about the environment, they received more information about global warming through television than through other media such as newspapers.

Most of the Thai youths in the study did not seek out television programs about global warming; rather, they watched them if they happened to be on, and they seldom watched an entire program about global warming. The respondents seldom understood what the program was saying about global warming; youths in outlying areas understood more than Bangkok youths. Most of the Thai youths in the study agreed that there is a lack of information about global warming in Thailand.

Youths' Preferences for a Global Warming Campaign

Most of the Thai youths in the study wanted pop culture icons to be spokespersons for a campaign to reduce global warming. Whereas

Bangkok youths preferred that Thai singers represent the global warming campaign, youths in outlying areas wanted movie stars to represent the campaign. As for specific media sources, most youths thought that the campaign should be presented through Channel 7 TV, the *Thairath* newspaper, and 97.5 radio. The respondents also expressed a desire for information to be presented by school teachers and famous athletes.

Thai Youths' Lifestyle and Awareness of Causes of Global Warming

Thai youths had a lifestyle that was moderately conducive to reducing global warming. They were not concerned about global warming; for example, they said they made no effort to save water and electricity at school because their tuition fees entitled them to unlimited use of these resources. There was no difference between Bangkok youths and those in outlying areas with regard to lifestyle activities that contribute to global warming.

The three statements most correctly understood by the respondents were the following: (1) Deforestation could cause global flooding in the future, (2) Warmer weather resulted from the burning of garbage, and (3) Deforestation exacerbates floods during the rainy season. By contrast, the three most misunderstood statements were (1) Animal farming contributes to a warmer climate each year, (2) Wasting fuel contributes to a shorter winter in Thailand, and (3) Turning on a fan or air conditioner will contribute to flooding around the world. The three most unfamiliar statements were (1) Wasting fuel contributes to a shorter winter in Thailand, (2) Animal farming contributes to a warmer climate each year, and (3) Use of synthetic fibers, chemicals, and plastics could cause past epidemics to recur. Youths from Bangkok and the provinces had the same level of awareness.

The study found a direct relation, significant at the .01 level, between Thai youths'

level of media exposure and their awareness of global warming. There was also a direct relation, significant at the .01 level, between awareness of global warming and lifestyle choices relevant to global warming. In addition, we ran a Scheffé test, which confirmed that the youths' understanding of global warming content affected their awareness of global warming.

DISCUSSION

Thai Youths' Exposure to Media Information About Global Warming

The research showed that youths' direct exposure to news about global warming from government agencies was minimal. Moreover, most of the youths were exposed to entertainment programming rather than documentaries; they tended to view Thai series that were broadcast after the evening news. This finding corresponds to AGB Nielsen Media Research results, which indicate that Channel 7 has the largest prime time audience in Thailand and that its audience has been increasing continuously ("Channel 7 Ratings," 2008). Documentaries focusing on environmental and global warming issues were not popular among youths. Not only are youths not attracted to serious information content, but documentaries are generally broadcast when young people do not watch television. In addition, according to the news and environmental experts interviewed for this study, Thai TV stations consider programs about global warming a public service and therefore give them limited air time. Environmental content does not sell; viewers prefer news about the economy, politics, and crime. One reason is that environmental news develops slowly, whereas political and crime news unfold daily and hold viewers' interest (J. Bansang, environmental news reporter for a Thai TV station, interviewed on October 13, 2008).

This pattern can be interpreted using Maslow's (1970) hierarchy of needs. Humans are inclined to be interested in basic needs or today's needs rather than future needs, and although many consider the environment an important issue, they believe that individuals cannot make a difference, that rich countries should be responsible for the environment, and that restoring the environment would require too much time and effort. One youth commented, "The majority of my friends believe that climate change is serious, but they don't think they'll live to see the effects. They don't think it's worth it to try to do anything about it."

The findings suggest that Thai youths' lifestyle is moderately conducive to reducing global warming. The youths seemed to alternate between being concerned about and ignoring global warming. They believed that they did not need to be concerned about saving water and electricity at school because these services were included in their tuition; if they were more conscious of environmental issues they might think differently about saving energy at school and thus help to reduce global warming. Therefore, classroom teaching should go beyond basic curriculum and textbooks and discuss the details and implications of these issues. Such instruction should be part of a continuous and systematic process, taking place at home, at school, and in society at large. As expressed by the director of a greenhouse gas management organization, "awareness campaigns should be organized as part of an education curriculum that will reach young people. We have to disseminate knowledge to youths and teachers about the environment and the need to reduce CFCs" (T. Pairojsombool, director of Greenhouse Gas Management Organization of Thailand, interviewed on April 2, 2009).

In Thailand, however, education regarding environmental issues does not foster a lifestyle that will reduce global warming. Thai youths from the focus group said, "we know that disposing of garbage by burning is not a

good idea, but we have no choice, only burning it or throwing it into the river." Because Thai youths and the majority of Thai people base their choices on tradition and habit, changing their lifestyle would require a systematic and well-planned approach plus a context that encourages preservation of the environment. According to A. Wongjareon, Head of Thai Red Cross Sirindhorn Station 12 at Toongsong,

To change people's lifestyle is a difficult task; one example is burning garbage, a source of global warming. In some provinces, burning garbage is prohibited in urban areas and near motorways. They are actually concerned about accidents, not global warming. The situation is even worse in remote areas, because city residents have municipal garbage collection. We do not see any local councils or government agencies encouraging a waste separation process. If waste is not collected by the municipality, local residents will burn everything, from plastic bags to tires. We can teach them how to separate their waste and what happens when they burn garbage, and after that we can initiate a campaign to stop burning garbage. We emphasized what can result from burning garbage and not separating waste, but the project was not successful. (interviewed in April 2009)

The survey indicated which statements about global warming Thai youths understood correctly, the statements they misunderstood, and those they were least familiar with (see earlier section). Youths from Bangkok and the provinces displayed the same level of awareness. A possible explanation for the incorrect answers is the indirectness of the questions used in the questionnaires. Youths might have known what "global warming" was, but not known about its causes and effects. As the questions were based on causal relationships, a large number of youths might not have known the correct answers or might have simply chosen to answer "I don't know."

Agenda setting theory suggests that the media could help raise awareness of global warming issues and advocate lifestyle choices that would help reduce global warming. Generally, Thai youths know about global warming but are not aware of its consequences. The media have already set global warming as a

social agenda. However, Thai youths do not follow the news about global warming, because details about global warming are presented mostly through documentaries, which Thai youths are not interested in watching.

Relations Between Thai Youths' Exposure to Global Warming News and Their Awareness About Global Warming

Among Thai youths, the relation between level of media exposure and awareness of global warming was direct, with a .01 level of significance. To elaborate, Thai youths who were more exposed to global warming news were considerably more aware of the consequences of global warming. This finding proves the first assumption of the research—a relation between exposure and awareness—and reflects the findings of previous research. For example, Penpinan's (2001) study of media exposure, knowledge, awareness, attitude, and participation in environmental preservation in Samutprakarn indicated that exposure to environmental preservation news was positively related to knowledge and awareness about environmental preservation.

The study findings indicate that the relation between level of exposure to global warming information and level of awareness of global warming was low. This result might be due to other variables that could interfere with the variables used in the study. The variables of knowledge of and attitude toward global warming were excluded from the study; however, some studies suggest that these two variables may be important. Doungvaaw (2005) found a direct relation (at the .01 level of significance) between knowledge and awareness of electricity saving among undergraduate students in Surin province. The possibility is that once people were exposed to media information, knowledge and attitude accumulated and awareness followed.

Findings from this study are not applicable for policy formulation, but they might be sufficient for policy recommendations, such as encouraging the media to cover more stories that would help build awareness of global warming.

Relationship Between Awareness of Thai Youths on Global Warming and Youths' Lifestyle Activities That Contribute to Global Warming

We found a direct relation (at the .01 level of significance) between Thai youths' awareness of global warming and their lifestyle with regard to global warming. In other words, those with a high level of awareness of global warming had lifestyles conducive to alleviating the global warming problem. This finding confirmed the second assumption of the research. Similarly, Vorawansetha (2003) found that local residents' level of awareness regarding the preservation of sea turtles was related to their level of participation in turtle preservation.

In our study, the relation between level of awareness and behavior was low and was a direct relation at the .01 level of significance. This finding might be due to other variables that affect the relation. As participants in the focus group suggested, "We knew that throwing garbage into the river was not good, but we still did it because we could not find other places."

However, other studies showed no association between awareness level and lifestyle; that is, being aware of an issue might not necessarily result in a change of lifestyle. For example, Penpinan (2001) found that local residents' knowledge about environmental preservation was not associated with participation in preservation efforts. Similarly, Pramnok (2001) found that executives' level of exposure to environment news from mass media and personal media was not related to environmental preservation awareness.

CONCLUSION AND RECOMMENDATIONS

Information about global warming is presented mostly through TV documentaries, and most of the Thai youths in the study have very low exposure to TV documentaries and programs about the environment; moreover, these youths obtain almost no information on the topic from government offices. They seem to ignore the issues of global warming. The study found direct relations (at the .01 level of significance) between level of media exposure and awareness of global warming, and between awareness of global warming and lifestyle activities that contribute to global warming. Results of the Scheffé test also indicated that the youths' understanding of global warming content affected their awareness of global warming.

This study is a necessary first step in demonstrating that the controversy over global warming—and the resulting difficulty in keeping global warming on the public agenda—is not simply a function of waning media attention, the ambiguities of climate change signals, or the complexities of climate science, but that it stems, in large part, from the concerted efforts of a powerful countermovement (McCright & Dunlap, 2000). Television and radio stations in Thailand need to revolutionize their operating philosophies. The media should not only produce programs that people ought to watch, they should also recommend programs that are beneficial and educational and stress the public's obligation to help reduce global warming. If global warming programs cannot get enough air time, producers can incorporate content about global warming into other programs, so that every program has the same theme. Television and radio programs need to provide more content about global warming using clear and simple communication. When people understand global warming, they will be aware of its consequences. The study findings indicated that in comparison to their exposure to entertain-

ment programs, Thai youths' level of exposure to information about global warming was low. Therefore environment preservation content, presented by celebrities and teen idols, should be incorporated into entertainment programs that youths watch. Executives at television and radio stations must prioritize programs concerning global warming. Research teams should be established to find how audiences want to see global warming presented in the media. Moreover, production teams need to be given training in the necessary skills to produce interesting programs about the environment.

REFERENCES

- Channel 7 ratings shoot up [advertisement]. (2008). *Khaosod* newspaper, October 27, p. 8.
- Corbett, J. B., & Durfee, J. L. (2004). Testing public (un)certainly of science: Media representations of global warming. *Science Communication*, 26(2), 129–151.
- Doungvaaw, P. (2005). *Level of knowledge and awareness about electricity saving among undergraduate students in Surin province*. Unpublished master's thesis, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand.
- Electricity Generating Authority of Thailand. (2009). Retrieved from <http://www.egat.co.th>
- Lippmann, W. (1992). *Public opinion*. New York: Macmillan
- Maslow, A. H. (1970). *Motivation and personality*. New York: Harper & Row.
- McCombs, M. E., & Shaw, D. L. (1972). The agenda-setting function of mass media. *Public Opinion Quarterly*, 36(2), 176–187.
- McCright, A. M., & Dunlap, R. E. (2000). Challenging global warming as a social problem: An analysis of the conservative movement's counter-claims. *Social Problems*, 47(4), 499–522.
- McNelly, J. T., & Izcaray, F. (1986). International news exposure and images of nations. *Journalism Quarterly*, 63(3), 546–553.
- National Climatic Data Center. (2009). Retrieved from <http://www.ncdc.noaa.gov/oa/ncdc.html>
- National News Bureau of Thailand. (2009). [Online]. Retrieved from <http://thainews.prd.go.th>
- Nghamkao, O. (2000). *Media exposure, knowledge, attitude and compliance with traffic rules among pedestrians in Bangkok*. Unpublished master's thesis, Chulalongkorn University, Bangkok, Thailand.

- Nisbet, M. C., & Myers, T. (2007). The polls—Trends: Twenty years of public opinion about global warming. *Public Opinion Quarterly*, 71(3), 444–470.
- Penpinan, P. (2001). *Media exposure, knowledge, awareness, attitude and participation in environmental preservation in Samutprakarn*. Unpublished master's thesis, Chulalongkorn University, Bangkok, Thailand.
- Pramnok, N. (2001). *Bangkok hotel executives' exposure to media information about environmental preservation, and their knowledge about and awareness of environmental preservation*. Unpublished master's thesis, Chulalongkorn University, Bangkok, Thailand.
- Stamm, K. R., Clark, F., & Eblacas, P. R. (2000). Mass communication and public understanding of environmental problems: The case of global warming. *Public Understanding of Science*, 9, 219–237.
- Vorawansetha, N. (2003). *Public relations strategy of sea turtle preservation campaign and participation by local residents in Chonburi*. Unpublished master's thesis, Chulalongkorn University, Bangkok, Thailand.
- Wangchingchai, L. (2003). *Public relations strategy in media utilization and effectiveness in electricity saving campaign*. Unpublished master's thesis, Chulalongkorn University, Bangkok, Thailand.
- Wanta, W., Golan, G., & Lee, C. (2004). Agenda setting and international news: Media influence on public perceptions of foreign nations. *Journalism and Mass Communication Quarterly*, 81(2), 367–377.
- Weingart, P., Engels, A., & Pansegrau, P. (2000). Risks of communication: Discourses on climate change in science, politics, and the mass media. *Public Understanding of Science*, 9, 261–283.