

**Gender Differences in Interest in Contemporary Science Topics**  
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by  
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Currently, the science media programs sponsored by the National Science Foundation's Informal Science Education Program fall into two main categories: those that cover a basic science topic in some depth (for example, *NOVA*) and those that present breaking news of an individual research project (for example, *Science Friday* or NSF's own web-site). A third and important category of science coverage that is missing in ISE's lineup are timely reviews of new findings or issues within major fields of research. Such reviews would permit the public to keep abreast of major happenings in a specific field like the recent wide-ranging discoveries in genome research or global climate research. Such reviews would not teach basic background science nor present specific new findings piecemeal but would reach and educate a diverse public with media updates, grouping current research news within the context of a broad field of science endeavor. Multimedia Research is in the process of carrying out exploratory focus group research to assess the feasibility and viability of this communication concept.

One research objective of the focus group study was to establish which broad areas of contemporary research content have the most potential for attracting the public. Part of the findings about this objective are presented in this document.

Sample. Focus groups were run in six nationally distributed sites with 6-8 members per group, each group stratified by occupational status (professional; skilled; semi-or unskilled workers) with equal males and females and 21% minority representation from the main minority groups - Blacks, Hispanics and Asians. A total of 128 adults participated.

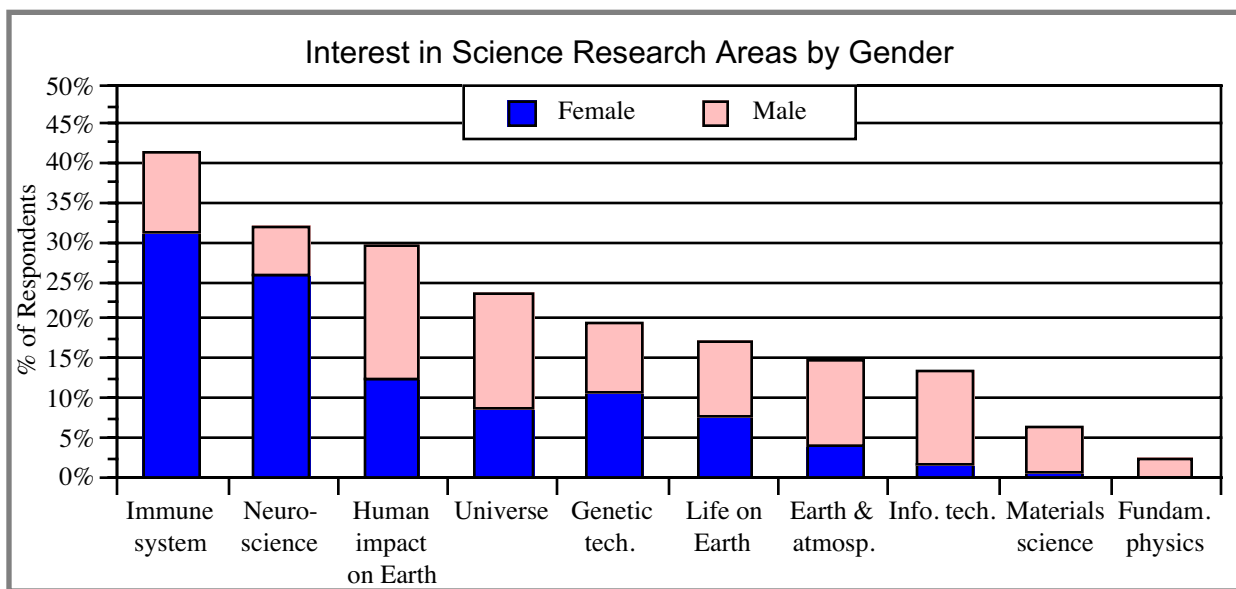
Method. As part of the focus group procedure, participants were given a list of ten major contemporary research areas in science with some of the major defining questions (see Table 1). The procedure to develop this list began with a review of recent years publications of *Scientific American*, *American Scientist* and *Technology Review* as representative of major science review publications. Also examined were special millennium year issues of "what science will know" in the future. An additional source was the *Science News of the Year* as listed by Science News Online, the Weekly Newsmagazine of Science. These hard print and electronic publications were examined for frequency of topics. An initial list was drafted of major headline areas with large defining research questions within those areas. The questions were to help our lay public understand the parameters of the headlined research area. The goal was to generate a list that represented important issues in contemporary science that might be the basis for review programs. The draft list was reviewed by individuals representing different science media: television, radio, and museums, as well as by NSF representatives and evaluation colleagues. Their feedback focused on organization, completeness, accuracy and language. The revision then reorganized to ten major topics,

eliminating repetition and overlap; adding issues recommended by at least two reviewers; and reducing detail and science jargon so that a less-educated respondent would not feel overwhelmed when reading the list.

**Table 1. Contemporary Science Research Areas**

<p><b>The universe</b>          How did our universe form? What are the driving forces that make it change over time? What is the meaning of strange phenomena like black holes and gamma bursts? What can we learn about planets, galaxies and possibly universes beyond our own? Is there life elsewhere?</p>
<p><b>Earth and its atmosphere</b>          How did the planet and atmosphere form and change over time? How do they continue to evolve? What are the dynamics of the inner earth, and how can we predict earthquakes and volcanoes? What processes dictate climate and how can we forecast tornadoes and weather patterns accurately?</p>
<p><b>Human impact on Earth</b>          How do human activities influence climatic changes, land habitats and world fisheries? How can changes be monitored and controlled, if not reversed? How will these changes, such as global warming and rainforest destruction and overfishing, impact life on earth? What is the impact of exploding population growth?</p>
<p><b>Life on Earth</b>          What were the first lifeforms on earth? How does evolutionary change occur? Where and what new species will we discover? Will new fossil finds and genetic analysis revise the history of the human race? What is the origin of languages, farming and complex societies in prehistory?</p>
<p><b>The immune system</b>          How does the immune system defend the body? What is the nature of and how does one prevent infections like AIDS or malaria? What is the nature of and how does one prevent immune system malfunctions like cancer? Can transplant rejection be eliminated, flu cases cured and human aging postponed with a better understanding of the immune system?</p>
<p><b>Genetic technology</b>          What will we learn about life using the newly completed catalogue of the genetic instructions that shape a human being? How will gene therapy or vaccines impact disease or disorders? How will genetic knowledge affect drug development or genetic modification of bacteria, animals and plants? What will be the ethical, legal and social impacts of genetic technology?</p>
<p><b>Information technology</b>          How will information processing and communication continue to speed up and improve? How will the limitations of current computing be overcome by molecular, quantum or biological computers? How will robots or image-recognition technology change medical practice, scientific data collection and military defense? What will be societal impacts of new technologies?</p>
<p><b>Materials science</b>          What will be the new developments in superconductors, plant plastics, blood substitutes, human tissue, and replacements for toxic materials like lead and asbestos? What will be the impact of controlling the structure of materials at the level of a few atoms or molecules (i.e., nanotechnology), and when will practical applications result?</p>
<p><b>Neuroscience</b>          How does the human brain work? What processes are involved in learning, thinking, decision-making and consciousness? Can we regenerate brain cells and spinal cells? How does the brain interact with our health?</p>
<p><b>Fundamental physics</b>          How will the basic forces of physics be unified by one explanatory theory? Will giant accelerator experiments lead to an understanding of matter and antimatter? What will be the next particles discovered or elements made?</p>

Most Interesting Topics. One of the activities that the focus group participants did with the list of topics and questions in Table 1 was to checkmark two and just two topics out of the ten that interested them the most. Chi-square analyses indicated that gender was the only variable related significantly to topic preference (see chart below). Significantly more women than men preferred the immune system and neuroscience topics, whereas more men than women preferred the topics of earth and its atmosphere, information technology and materials science.



The top five topics for women - immune system, neuroscience, human impact on Earth, genetic technology and universe account for 95% of the women's votes. The women were very consistent and narrow in their choices, focusing mainly on topics that had to do with humans. The top five topics for men - human impact on Earth, universe, information technology, earth and its atmosphere, and immune system account for 67% of the men's votes. The men were broader as well as different in their choices of favorite categories.

Respondents were asked WHY they were interested in each of their chosen topics. The following pages summarize the reasons given in discussion of the top female topic (immune system) and the top male topic (human impact on Earth). Responses were sorted into mutually exclusive categories; however, a respondent's discussion could provide more than one distinct reason for their interest in a topic.

## Why Interested in the Immune System? - topic most interesting to women

### **40% Personal Relevance - "need to know"**

Two-fifths of those interested in the immune system, exclusively women, used the terms 'personal interest' or 'need to know' in explaining why this topic was most interesting to them. They have a family member or friend who has an immune related disorder and feel that the information is very relevant to them. They say things like "it's information that I can personally use;" "It is of intensely personal interest;" "I have a personal interest in this;" "I need to know about this kind of stuff."

"I have family that have cancer and have known someone that's died of AIDS. To me, it's something that you're interested in how, you know, your body could deteriorate and so quickly; one minute, everything is fine and the next minute, you drop." Female, Skilled worker

### **15% Prevention information**

A group of 15%, mostly women, were interested in prevention information; e.g., "how you can prevent yourself from getting certain diseases."

"I always like to read about things that affect our health and what we can do about it and maybe what we should have done in the past but didn't know about." Female, Semi-skilled worker

### **15% Simply interested**

Another group of 15% of those interested in this area, were simply curious about the immune system. They had studied biology in college, liked to be informed about the human body, and found it interesting. Again, these were mostly women with a sprinkling of men.

"I studied the immune system. I just think it's interesting - blood, blood work and immunities and body defenses - academically interesting." Female, Professional worker

### **15% Biological conflict**

About 15% of those interested in this area, half men, found the biological conflict "fascinating." They were fascinated with the "battles" and "fighting" going on in the body. This group focused on the process, the mechanism, rather than the end result of the process, that is the disease or disorder.

"I find the adaptation of the microbe fascinating because they're fighting for their lives as well, and what's really fascinating is that we only have two antibiotics left, maybe one, and when that one's breached, we will have no defenses left. The biological warfare is fascinating." Male, Semiskilled

### **7% Work related**

A very small portion (7% ) of those interested in this topic, all women again, were interested because of their work. They were therapists, nurses or fitness trainers who found this kind of information useful in their occupation.

"I work with geriatric patients. I do a lot of education in my job, and we talk a lot about the immune system. A lot of counseling I do is stress related, which relates to the immune system."

Female, Professional worker

## Why Interested in Human impact on Earth? - topic most interesting to men

### **28% Saving Earth for future generations**

More than one-quarter of those who chose this topic, mostly men, were worried about saving the Earth for future generations, both in the abstract and in the specific, as exemplified by this quote:

"I'm more concerned about the fisheries and the water system and stuff like that. What's actually gonna happen to them. The fisheries right now are hurting, and we've got to try to figure out the impact on how we can switch over and do a lot better than we are now. I just do a lot of fishing and I want to get my boys into it. . . . When my grandkids get old enough, they'll be able to go out and do the fishing thing without having any problems." Male, Skilled worker

### **21% Experienced local negative environmental impact**

One-fifth of those who chose this topic reported personal experiences with negative environmental impacts in Florida canals and reefs, in Massachusetts woods and in Michigan lakes and rivers. There was recognition that humans were influencing the environment locally and concern about it:

"Back in 1969, all the canals in south Florida were blue. You dare swim in one now." Male, Professional worker

### **18% Educational information for self and others**

A group of 18% were interested in obtaining information that they could use in their own lives to make a difference and/or were interested in educating the public:

"I feel like there is something I can do about it in a very small way, so I like to know what I could be doing to make positive changes." Female, Skilled worker

"I'm interested in finding out ways that we can make the general public aware of how we can protect the environment and how to slow down the process of destroying ourselves." Female, Skilled worker

### **13% Population growth**

A group of 13%, mostly female professionals, focused on the research question posed about the impact of exploding population growth.

"I wonder about how long the earth can sustain itself. We all have an impact, and I wonder how we can minimize the impact and what that would mean? Will we end up like China with rules like one child per family?" Female, Professional worker

### **10% Simply interested**

A small group of 10% were simply curious about all the questions listed under the general category:

"I'm curious about a lot of these things. Human activities. Global changes. How much? Why? If so, how do we curtail them? Have they really proven global warming? I guess I'm really curious about these things." Male, Professional worker

Conclusion. As part of a focus group exploratory study, 128 participants noted which two of ten contemporary science research areas they were most interested in. Of note is the fact that all classification variables (except gender) were unrelated to topic appeal. Interest in each research topic was not influenced by age; educational level; minority/majority grouping; total household income; occupational status; and perceived need for science knowledge in one's employment. Tentatively, we could conclude that the audience for contemporary science information is more homogeneous than media analysts might predict. However, recognition of the strong gender influence is important to recognize in designing effective media presentations for public understanding of current science research.