

## 41. Science and Technology in TV: the cases of Greece and Cyprus

*Christina Karamanidou<sup>1</sup> Kostas Dimopoulos<sup>1</sup> Vasilis Koulaidis<sup>1</sup> Markus Lehmkuhl<sup>2</sup>*

<sup>1</sup>University of Peloponnese, Dept. of Social and Educational Policy, Damaskinou & Kolokotroni str, 20100, Korinthos

<sup>2</sup>Freie Universität Berlin, Dept of Political and Social Sciences, Institute for Media and Communication Studies  
ckaramanidou@gmail.com, dimop@uop.gr, koulaidi@uop.gr, kuhle@zedat.fu-berlin.de

**Abstract.** This paper aims at a full mapping of TV science programs in Greek speaking media (i.e. Greek and Greek-Cypriot media) as well as at linking some critical structural characteristics of these programs (i.e., format and content) with audience reception. The study constitutes part of the European funded (FR7) project “Audio Visual Science Audiences-AVSA” coordinated by Free University of Berlin which conducted a structural analysis of science programs in 13 European member states and investigated their reception by different segments of the public.

**Keywords:** Audience data, Public perceptions of science programs, Science and technology programs

### Introduction

The principal objectives of this study were: (a) to identify and classify science television programs in Greece by type; (b) to correlate audience data with science program types; and (c) to investigate audience responses to specific program types.

In most of the EU member states, there are several weekly television programs on science. Alongside programs comprising reports and discussions of new developments in science generally, there are programs with a more restricted focus, e.g. on astronomy, and there are big-budget documentaries on major topics. The level of production of such programs varies very considerably across Europe. In Greece, there are currently under 20 TV programs about science, technology and health produced by both public and commercial channels. In other European countries such as Germany, there are more than 40 television programs dedicated to science and technology, many of which have been introduced recently, and that number does not include health/ medicine programs (AVSA, 2010).

Television science reinforces the legitimacy and sacredness of science (Dunwoody, 2008). This is due to the way science is presented, as producing solid, straightforward mostly positive results, as well as how scientists are presented as experts and quite apart from other professionals. Evidence presented in the Special Eurobarometer survey, Scientific Research in the Media (European Commission 2007) reveals that the strongest preference among sources for information on scientific research was by a wide margin for ‘traditional TV channels’ – 34% in the EU, ranging from 27% in the UK to 62% in Greece. However, in the whole of Southern Europe (Greece, Cyprus, Spain, Italy, and Portugal) and also in Eastern Central Europe there are relatively few science programmes (AVSA, 2010). This is most likely not because the audience would be less interested than in other places but the lack of provision is a result of the precarious financial situation of the public service broadcasting sectors in these countries.

The current study constitutes part of the European funded (FR7) project “Audio Visual Science Audiences-AVSA”.

### Method

Identification and categorization of science programs

The sample contains all science programmes broadcasted within three reference weeks in 2007 and two in 2008. Programs were selected: (a) if the words ‘science’, ‘research’, ‘knowledge’, ‘technology’, ‘computers’,

‘environment’, ‘health/medicine’, ‘discovery’ or the name of a scientific discipline (including social sciences) were in the title, subtitle or description of the programme in guides or the internet; (b) if they were on the webpage of a channel under a category whose title contained clear references to science, knowledge, technology, medicine, environment or the name of a scientific discipline. The programs were categorised by type according to the following typology. Popularisation programs (documentaries) typically present science in a factual and informative manner, often consisting of interviews accompanied by narration. Topic areas can include astronomy, engineering, history etc. Advice programmes give advice on healthier living or how to save energy tend to involve lay people. Selection of topics is guided by the necessity to provide the audience with practical tips. Edutainment programmes. The agenda is not guided by science observation but by the aim to educate and entertain the audiences. However, scientific explanations are typically only a minor part of the programme and personalities such as artists or sportsmen often dominate the

scene. Typical examples of Information programmes are science news broadcasts which are characterized by short preparation time and specialization in observation of current events within the science system. Advocacy programmes focus on happenings stemming from social systems other than science, especially politics. Environmental protection is a central topic in this programme type.

**Audience data**

TV ratings were collected for each science program broadcasted in Greece and Cyprus from a private media research company keeping a systematic data base. Socio-demographic characteristics of the audience were also collected (age, gender, educational status).

**Focus groups**

The purpose of this part of the study was to elicit participants’ judgments about the three clips shown as representatives of their corresponding types and identify the criteria or the ways in which they make these judgments. Participants with specific socio-demographic characteristics were recruited for the conduct of eight focus groups.

**Table 1. Composition of the focus groups**

Group	Description
Group 1 schools, under	Participants of mixed gender (preferably balanced) recruited from vocational schools, under 20 years old.
Group 2&4 teachers,	Participants of mixed gender (preferably balanced) recruited from lists of science amateurs scientists, science museum visitors, etc.
Group 3 secondary schools,	Participants of mixed gender (preferably balanced) recruited from upper secondary schools, 15 to 17 years old.
Group 5	Participants of mixed gender (preferably balanced) who are well educated (university degree), between 30 and 49 years of age.
Group 6 well educated	Participants of mixed gender (preferably balanced) who are 50 + years of age, (university degree).
Group 7	Participants of mixed gender (preferably balanced) who come from mixed educational backgrounds and are between 30 and 49 years of age.
Group 8	Participants of mixed gender (preferably balanced) who are 50+ years of age and come from mixed educational backgrounds.

Participants were recruited after responding to a screening question ‘how would you rate your interest in science? If participants responded with ‘very interested’ or ‘quite interested’, then they were asked a series of questions regarding science related science activities and how often they engage in them (‘Do you regularly, occasionally, hardly ever or never...? a) Watch TV programs about science, b) Listen to radio programs about science, c) Buy specialized press about science, d) Look on the Internet for information about science, e) Read science articles in general newspapers and magazines). Sessions lasted approximately 2 hours. The stimuli were presented to the participants on the TV set and the whole discussion session was recorded. Moderators attended a training workshop organized by professionals in the field before conducting the focus groups discussions. The stimuli used during the focus group discussions were broadcasted in 2008 and 2009. One stimulus from each type was presented. This typology is a continuation of the work by Lehmkuhl (2007).

Type 1–Science news report: This clip was part of a news program, lasted for 2.5 minutes and it discussed a medical advance i.e. a cure for individuals suffering from Type I diabetes. The report included statements from researchers and diabetes experts from the U.S. and Greece. Type 2–Report on big issues of science: The program chosen was an episode of a documentary series called "The universe I have loved". The clip dealt with whether there was ever extra–terrestrial life on Mars. The presenter is a scientist who takes the audience through the latest scientific discoveries on this topic. Type 3–Report on scientific explanations of the everyday world: ‘Analyze this’, is a weekly program presented by a psychologist who discusses topics stemming from "how and why" questions of our everyday experiences. The clip presented dealt with the issue of "why we need sleep" and explains what happens during sleep,



sleep stages and sleep disorders based on latest scientific findings and lasted approximately 3 minutes.

## Results

### *Program types*

Nineteen science programs were identified in Greece and three in Cyprus. The majority of programs were related to health/ medicine but the rest touched a variety of topics such as the environment, the universe etc. In Greece, we identified 9 Popularisation, 8 Advice and 2 Advocacy programs. It is worth noting that there is a complete lack of edutainment, which in most of other European countries has become extremely popular and information programs (AVSA, 2010). All three programs broadcasted in Cyprus, were Advice programs.

### *Audience data*

The viewership data show that the available science programs are watched by relatively low percentages of the population. Due to the lack of a large variety of different types of programs and the low audience numbers in Greece and Cyprus, it is difficult to determine whether different segments of the audience (age groups, educational background, gender) have different preferences with regards to the type of program. However, in Cyprus, a country whose population is slightly over 1 million, the average number of science program viewers is 17.000, of which 12.333 (72.5%) are over 50 years of age.

In Greece (potential viewers: 9.356.888 individuals) data revealed that advice science programs related to health and medicine have on average more female than male viewers. Moreover, the majority of viewers of programs related to health and medicine are over 50 years of age. In contrast, documentaries have more male than female viewers while advocacy programs have an equal number of male and female viewers. On average, science programs have more viewers with a medium education followed by viewers of a low education while there are fewer viewers of a high educational level. It might be the case that the size of an audience is more determined by scheduling than by different preferences expressed by the public.

Specifically only three programs were scheduled within prime time zone (9pm-12pm) while three programs are scheduled in the after midnight zone (12pm-6 am), seven programs in the morning zone (6am-13pm), six programs in the early afternoon zone (13pm-17pm) and three programs in the pre-prime time zone (17pm-21pm). This finding does not necessarily support the notion that the audiences just watch what producers want them to watch, or that audiences must be considered to be passive consumers of what is scheduled on their preferred channels. However, it highlights the need to perform an in-depth analysis of the factors which influence viewers' preferences.

**Table 2. Audience data according to program content (absolute numbers)**

Content	Average number of viewers
Health programs (7)	62.000
Space (2)	32.500
Generic science (2)	32.500
Environment (5)	31.000

**Table 3. Audience data according to program type (absolute numbers)**

Type	Average number of viewers
Advice (6)*	69.000
Popularization (9)	31.222
Advocacy (1)*	24000

*\*missing data from 1 Advocacy program and 2 Advice programs*

The majority of science programs in Greece are related to health/medicine which is evident even from the titles e.g. 'Secrets to good health', 'Health for everyone', etc. The environment is also a very popular topic e.g. 'Eco news', 'Ecology and diet', 'Thirsty planet', etc. There are some programs concerned with the universe or space e.g. 'The universe I have loved' and 'The sensitive universe'. A small number of mini-series programs deal with different scientific issues 'Magically simple' or 'Science Nova'.

## Clip assessments

### Clip 1: Science news report

Content: The majority thought that the medical breakthrough is interesting and worthwhile to present during mainstream news since a large portion of the public might be directly or indirectly affected (Group no. 1, 5, 6, 7, 8). The only criticism received was from younger participants who supported that the issue was not analyzed in depth and thus narrowed the intended audience to those affected by diabetes, experts or families (Group no. 3). Participants judged the best feature of the clip to be that scientists had the opportunity to talk about their research and what it means to them. Also, that it gave information on what would be the latest news from the medical community. They thought the information provided was better documented as experts were talking about the issue. Participants found the clip aimed to inform people about the direction research is taking however it also transmitted a feeling of hope.

Way of presentation: Participants thought that it was a good choice to present this topic with many speakers and expert opinions within a working environment i.e. lab. (Group no. 5, 6, 7, 8). One participant said "It was very forward of them to use 3D animations in a news clip" and commented on the role the scientist had in the clip "Did you see the scientist in the lab? They made an effort to present the scientist in a different light" (Group no. 2). However, other participants felt that the information presented was not understood by everyone and that the only information essentially offered is that the therapy for diabetes is very close. Some participants from group no. 2 thought that medical breakthroughs are presented in news so often that they have sort of lost their credibility. Also, that there was a fake air of "scientificness" about this clip such as the presence of some terms and images and this was a negative aspect to this reportage according to the participants. This was attributed partly to the fact that the journalists presenting the topic were not scientists themselves and partly due to the way of presentation – quick pace, a lot of information etc.

Context of media output production, its effect on public awareness of S&T: Participants from mixed educational backgrounds aged 50 + pointed out that reporters of health issues (or science issues in general) should be specialized in this—not just any reporter (Group no. 8). Moreover, it gives people the motivation to search in depth about this topic (Group no. 7). Some participants felt that the medical breakthrough should not be presented as if the solution is already there and give false hope "There is an ethical dilemma however—scientists have responsibility when presenting a health topic" (Group no. 2). Participants also mentioned that news is usually presented in an overdramatic way because the program broadcasters sometimes are more interested in triggering a sensation rather than presenting credible information i.e. this can have the effect of scaring people—the example of the flu vaccine H1N1 was given (Groups no. 1, 3). One participant felt that the media "use" medical breakthroughs to create a sensation (Group no. 7) and that it would be much better to actually announce a breakthrough when it is already used or applied rather than announce something which is still under investigation and give people false hope (Group no. 7).

### Clip 2: big issues of science

Content: Participants thought the clip was interesting as it was not narrow in focus but rather approached questions which have preoccupied scientists for a long time "interesting and larger than life" (Group no. 5).

Way of presentation: Participants made quite a few negative comments regarding the presentation style. Specifically, participants thought that the two professors presenting the program had not been advised by TV people so that the end product is more appealing to the audience. "The presence of scientists contributes to the reliability of the program. But experts are not experts in communication! I understand that programs are presented by scientists to enhance status but in this case they should receive some training on communication" (Group no. 2). The majority of participants felt the tone was "didactic" and the presenters spoke "painfully slow". They thought that this production is actually representative of Greek state TV and if this was presented by SKAI, a private channel it would be much more interesting. Younger participants judged the clip to be boring and the effort to dramatize the issue it dealt with not successful at all "this music they use, it is like a thriller, spooky" (Group no. 3). Participants did not doubt the credibility of the images presented in the background. This could be attributed to the fact that the images presented behind were not so sophisticated i.e. 3D graphics etc. but mainly showed generic images from space. None of the participants doubted the status of the scientists and the information they conveyed. The majority of participants irrespective of age and educational background judged the fact that the program was presented by professors who knew their field of study well as a positive thing. In fact, some mentioned that this was indeed a scientific program with real scientists "Purely scientific. It encompassed history of science, methodology and began to answer a scientific question" (Group no. 2).

Clip 3: scientific explanations of the everyday world

Content : The majority of participants felt that a daily life topic is much more personally relevant and accessible to everyone compared to other scientific topics such as big issues in science.

Way of presentation: Participants both criticized and praised the set up of this clip. Younger participants especially thought that it was much more memorable since there was a quick pace, easy language and that the topic was approached in a way so that no issues were unaddressed (Group no. 1, 3). Others judged the program structure positively as it went from general to specific, it was of short duration and there was limited information presented on a single topic in a concise way (Group no. 5 and 7).

All participants thought that the summary points presented at the bottom of the screen were really helpful for viewers so as to retain information better. It was mentioned that the program was successful as it combined image, sound and text. Others felt the strong point was that the presenter mentioned results from research studies (Group no. 8).

However, participants also commented that this program seemed more like an advertisement or that it was like opening up an encyclopedia. They thought the format of the program was unsatisfactory as the production team cannot expect the audience to "have an appointment with the program" i.e. go out of their way to watch this program since it only lasts 5 minutes. A program of such short duration does not have such a strong identity – no viewer will rush home to watch it as there is such a huge possibility that viewers might miss it (Group no. 7) however a healthy young person is very suitable to give health related advice (Group no. 7).

However, most participants heavily criticized the clip as they felt that this was a cheap production only based on the appearance of the presenter "the particular presenter was chosen because of her looks and because she would attract more viewers". Furthermore, most participants thought that she was not convincing in her role "these programs should be presented by a scientist so that the information is correct and credible" (Group no. 3).

## Conclusions

Research findings indicated that there are few science programs broadcasted in Greek and Cypriot TV of which most are popularisation and advice programs while there is complete lack of Edutainment and Information programs. Another important observation is that the scope of topics used is very limited. The majority of programs concern the areas of health/ medicine and the environment. Furthermore, science programs audiences are very low. However, older viewers and of lower educational background tend to follow health related programmes falling within the "advice" type in a more systematic way.

Findings of the focus group discussions indicate that the majority of participants believe that the production and broadcasting of science programs is primarily the responsibility of public channels. However, most of the science programs in Greece are broadcasted by a single, private channel and mainly produced abroad. Findings also show that participants have a set of specific criteria according to which they judged scientific programs. These included personal relevance of topic, the presentation/set up of the program, the presenter/scientist presenting the program, the scientificness and the reliability of the program. Some differences were evident between different segments of the public. For example, reliability of the presenter and the information was more important to participants with a higher education while younger participants were more concerned with the presentation of the program. Content was a relevant criterion for all participants however, participants with a higher education judged the big issues in science clip and the science news report clip in a more positive light. Conversely, participants of a lower educational background judged the clip on scientific explanations of everyday world more positively. These findings could open up the road for benchmarking S&T presence in TV as well as contribute towards a better understanding of the elements different segments of the public would appreciate.

## References

- 1 Audio Visual Science Audiences (AVSA) Final report (2010) posted at [https://lms.fu-berlin.de/webapps/portal/frameset.jsp?tab\\_tab\\_group\\_id=7\\_1](https://lms.fu-berlin.de/webapps/portal/frameset.jsp?tab_tab_group_id=7_1) or available upon request.
  - 2 European Commission, (2007). Eurobarometer report – scientific research in the media. Brussels: European Commission.
  - 3 Dunwoody, S. (2008). Science journalism. In B.Trench & M.Bucchi (eds.), Handbook of public communication of science and technology (pp. 15-26). London: Routledge, 2008.
  - 4 Lehmkuhl, M. (2007) Typen des Wissenschaftsjournalismus. In: Hettwer, H.; Lehmkuhl, M.; Wormer, H.: WissensWelten: Wissenschaftsjournalismus in Theorie und Praxis; ein Lehrbuch. Bertelsmann Stiftung, Gütersloh (im Druck).
-

