

# The Swinburne National Technology and Society Monitor

Australian Centre for Emerging Technologies and Society  
2006 Monitor



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SWINBURNE UNIVERSITY  
OF TECHNOLOGY

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## Executive Summary

The Swinburne National Technology and Society Monitor provides an annual 'snapshot' of public perceptions of technological change. Each year it includes an in-depth focus on one particular technology: this year the focus is on stem cell research. The Monitor is based on a national survey of 1000 Australians. The main findings of the 2006 Monitor are:

### Public Perceptions of Technological Change

1. Australians are very comfortable with the rate of technological change.
2. Most Australians are uncomfortable with the thought of nuclear power plants in Australia.
3. The degree of comfort with genetically modified plants and animals for food is relatively low.
4. While Australians are very uncomfortable with the idea of cloning, they are more comfortable with cloning domestic pets than cloning human babies.
5. Australians trust scientific institutions (such as CSIRO, universities and scientists) and the non-commercial media for information about new technologies. They are somewhat trusting of the environmental movement, but do not trust government institutions, major companies, the churches or trade unions. They have the least trust in the commercial media.

### Focus on Stem Cell Research

1. Most Australians are comfortable with stem cell research using either tissue from adults or left-over IVF embryos, but are generally uncomfortable with stem cell research using therapeutic cloning.
2. In general Australians believe that potential benefits are likely for a wide variety of people if stem cell research is allowed to continue. The exception is the likely benefits for themselves personally, where most Australians believe they are unlikely to benefit from stem cell research.

# Introduction

## Background

We are living during a time of rapid technological change. Emerging technologies – notably information and life science technologies – have profound social, political, psychological and ethical implications. Public perceptions of emerging technologies are potentially volatile.

The Swinburne National Technology and Society Monitor was developed by the Australian Centre for Emerging Technologies and Society (ACETS) at Swinburne University of Technology. It involves a representative nationwide survey of Australians, and provides an annual ‘snapshot’ of public perceptions regarding new technologies in Australia.

The 2006 Monitor is the fourth edition of the Swinburne National Technology and Society Monitor. It provides a snapshot of public perceptions in 2006, and how these perceptions have changed since 2003.

## The Monitor

The Swinburne National Technology and Society Monitor involves:

- ◆ A general account of public perceptions about new technologies in Australia, including trust in institutions that provide information about new technologies.
- ◆ An in-depth profile on public perceptions about one technology in particular. Each year the Monitor adopts a different focus.

## Focus on Stem Cell Research

The 2006 Monitor focussed on stem cell research. This was because stem cell research was by far the most volatile and publicised issue around emerging technologies in 2006.

As it happened, the Monitor was carried out during the weeks in which parliamentary debate on the use of therapeutic cloning in stem cell research occurred. As a result, many respondents were keen to talk about the issue, and the average length of our interviews was almost twice as long as is normally the case.

## The Survey

The 2006 survey included 1000 respondents. Participants in the national survey were asked:

- ◆ How comfortable they were with the current rate of technological change.
- ◆ How comfortable they were in relation to various technologies, ranging from relatively 'established' technologies (such as the Internet) to ones that are still speculative (such as cloning human babies).
- ◆ The extent to which they agreed or disagreed with statements about the value of science and technology, and their beliefs as to the amount of control science should have over nature.
- ◆ How much they trusted various institutions, organisations and groups for information about new technologies.
- ◆ How comfortable they were in relation to stem cell research in different contexts.

Comfort with technologies was measured on an eleven point Likert scale where 0=not at all comfortable and 10=very comfortable. Agreement with statements about science and technology were measured on the same scale where 0=strongly disagree and 10=strongly agree. Trust was measured on the same scale where 0=don't trust at all and 10=trust a very great deal.

Additional questions were asked regarding perceived likelihood of benefits for various people if stem cell research was allowed to continue in Australia. Each of these questions was measured on an eleven point Likert where 0=no benefits are likely and 10=benefits are extremely likely.

Participants were also asked demographic and personal questions about:

- ◆ Age
- ◆ Gender
- ◆ Employment status
- ◆ Occupation
- ◆ State of residence
- ◆ Geographic location (urban, rural, remote)
- ◆ Voting behaviour
- ◆ Religion
- ◆ Internet use
- ◆ Relationship status

## Response Rate

A total of 7,735 telephone numbers were used. Of these, 2,304 numbers were ineligible (disconnected numbers, business numbers, fax machine numbers). Of the remaining 5,431 eligible calls, 1,431 were non-responses, leaving 4,000 valid responses.

Of the 4,000 valid responses

- 1,000 completed the survey
- 2,826 refused to participate
- 174 had a language barrier

If the language barrier responses are deemed ineligible, this leaves 3,826 eligible responses.

The response rate is then the proportion of completed calls from the total valid eligible responses  $(1000 / 3826) = 26.14\%$

# Public Perceptions of Technological Change

## Key Findings

1. Australians are very comfortable with the rate of technological change, but comfort with specific technologies varies from being very comfortable with stem cell research using tissue from adults, to being very uncomfortable with cloning.
2. Most Australians are uncomfortable with the thought of nuclear power plants in Australia.
3. The degree of comfort with genetically modified plants and animals for food is relatively low. However, Australians are more comfortable with genetically modified plants for food than with genetically modified animals for food.
4. While Australians are very uncomfortable with the idea of cloning, they are more comfortable with cloning domestic pets than cloning human babies.
5. Australians trust scientific institutions (such as CSIRO, universities and scientists) and the non-commercial media for information about new technologies. They are somewhat trusting of the environmental movement, but do not trust government institutions, major companies, the churches or trade unions. They have the least trust in the commercial media.

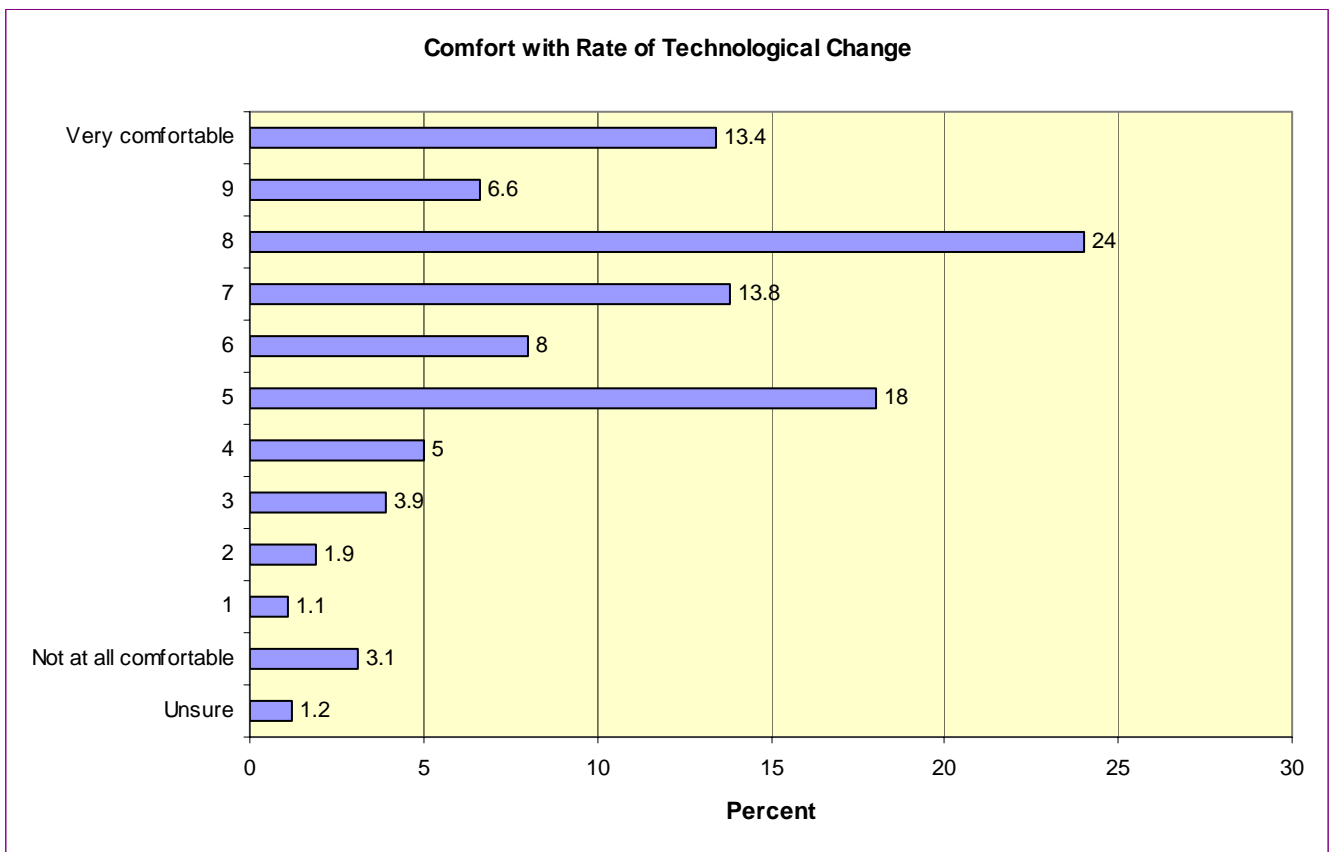
# Comfort with the Rate of Technological Change

In general, Australians are comfortable with the rate of technological change in the world today (average rating = 6.7).

Sixty six percent of the sample gave ratings above the mid-point of 5 on the 0 to 10 rating scale, while only fifteen percent gave a rating below the mid-point of 5.

Eighteen percent of the sample reported they were neither comfortable nor uncomfortable (rating at mid-point of 5), and one percent reported being unsure of their comfort level with the rate of technological change.

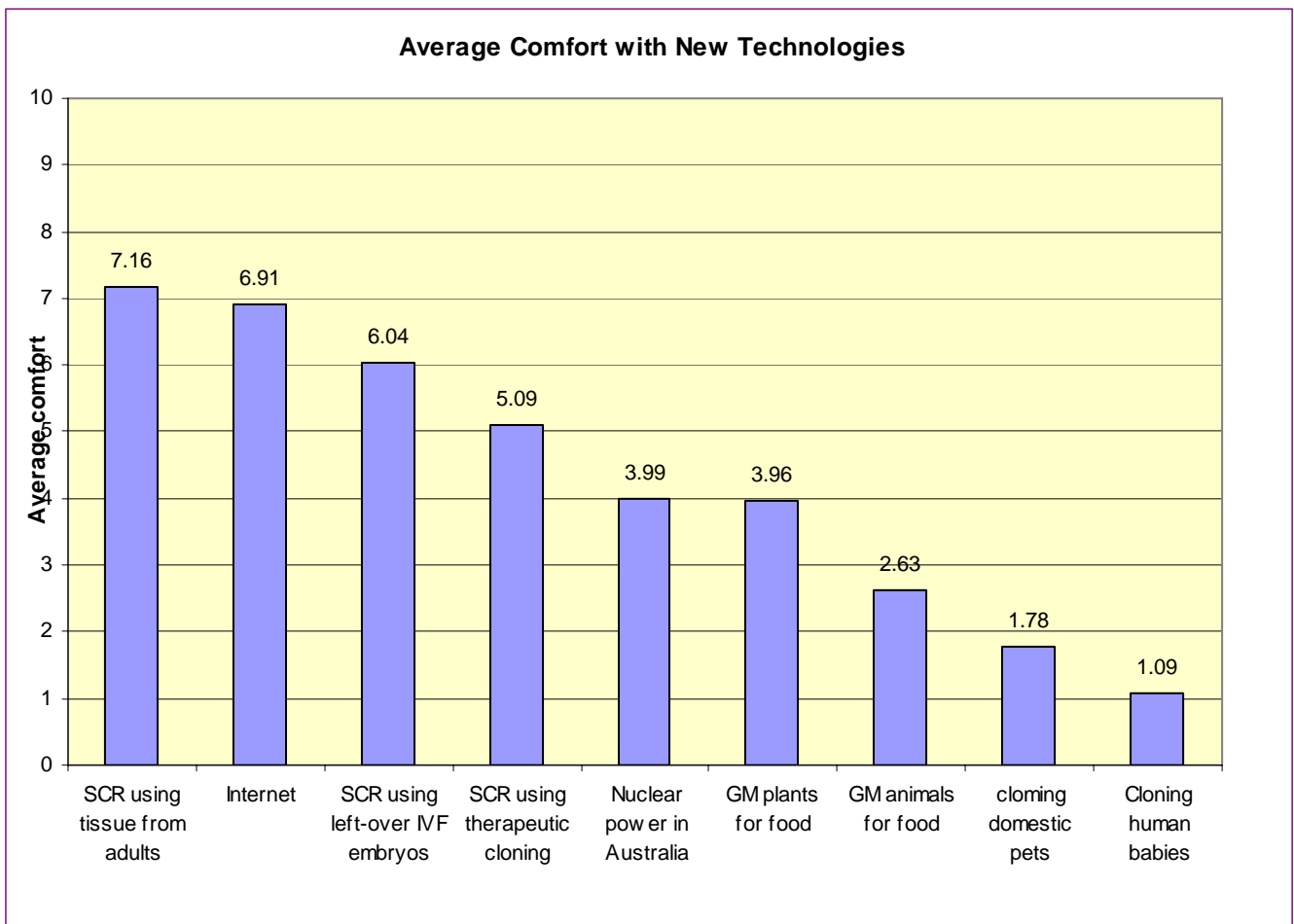
Men were significantly more comfortable with the rate of technological change than women, but comfort levels were not related to age of respondents.



## Comfort with New Technologies

Australians are very comfortable with the Internet and stem cell research using tissue from adults. They are somewhat less comfortable with stem cell research using left-over IVF embryos or therapeutic cloning.

Australians are equally uncomfortable with nuclear power plants in Australia and genetically modified plants for food. They are less comfortable with genetically modified animals for food, and very uncomfortable with cloning domestic pets and human babies.

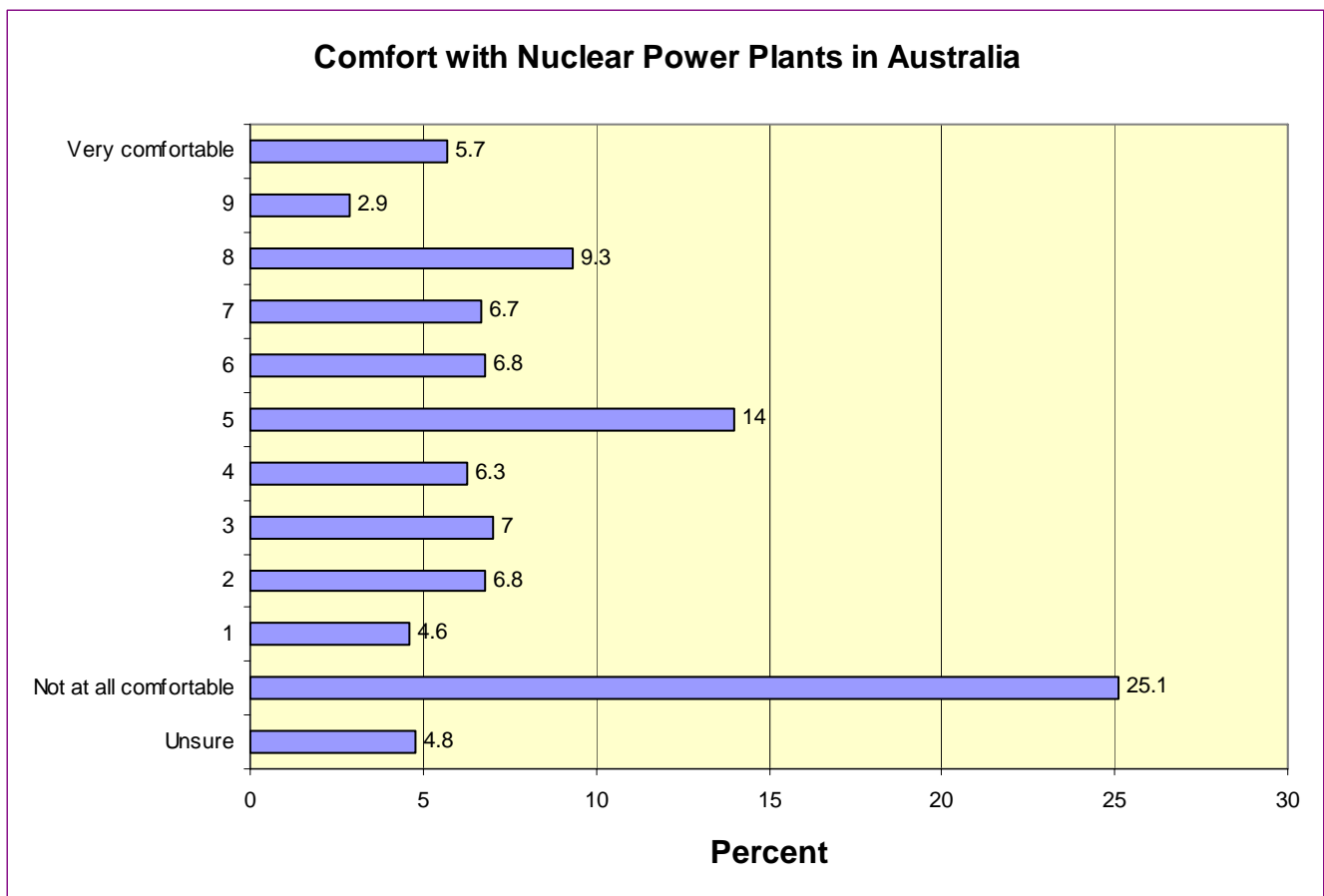


## Comfort with Nuclear Power Plants in Australia

In view of recent government and media reports about Australia's readiness for nuclear power, it seemed timely to examine Australians' levels of comfort with the thought of nuclear power plants in their own country. Our data suggests substantial discomfort.

On average, the level of comfort with nuclear power plants in Australia was quite low (average rating = 4.0). Only 31% of Australians reported some degree of comfort with nuclear power plants (rating above the mid-point of 5 on the scale). While 50% of the sample said they were, to some degree, not comfortable with nuclear power plants, half of these (25%) gave comfort ratings of 0, indicating they were not at all comfortable. A further 19% were unsure about nuclear power plants in Australia (14% rating at mid-point of 5 on the scale and 5% specifying they were unsure of their comfort level).

On average, men were much more comfortable with nuclear power than women.



## Comfort with GM Plants and Animals for Food

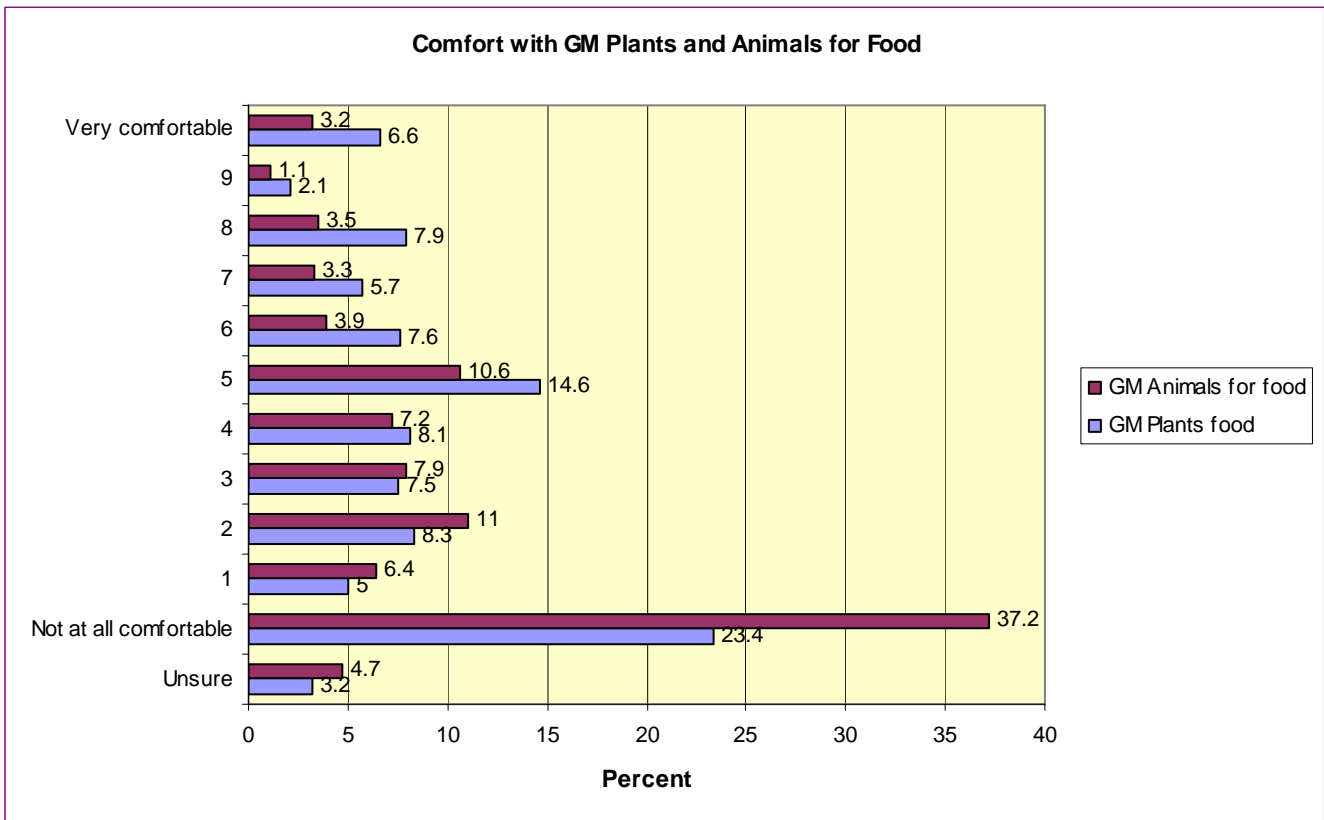
On average, Australians were more comfortable with genetically modified plants for food (average rating = 4.0) than with genetically modified animals for food (average rating = 2.6), but the degree of comfort for both was relatively low.

Thirty percent of the sample reported some comfort with genetically modified plants for food (rating above the mid point of 5 on the scale), while only 15% reported some level of comfort with genetically modified animals for food.

The majority of the sample was uncomfortable (rating below the mid point of 5 on the scale) with genetically modified plants (52%) and animals (70%) for food. Of these respondents, most reported they were not at all comfortable with GM plants (23%) or animals (37%) for food.

A further 18% reported being unsure of their comfort with genetically plants for food, while 15% reported being unsure of their comfort with genetically modified animals for food.

Men were significantly more comfortable than women with both genetically modified plants and animals for food.



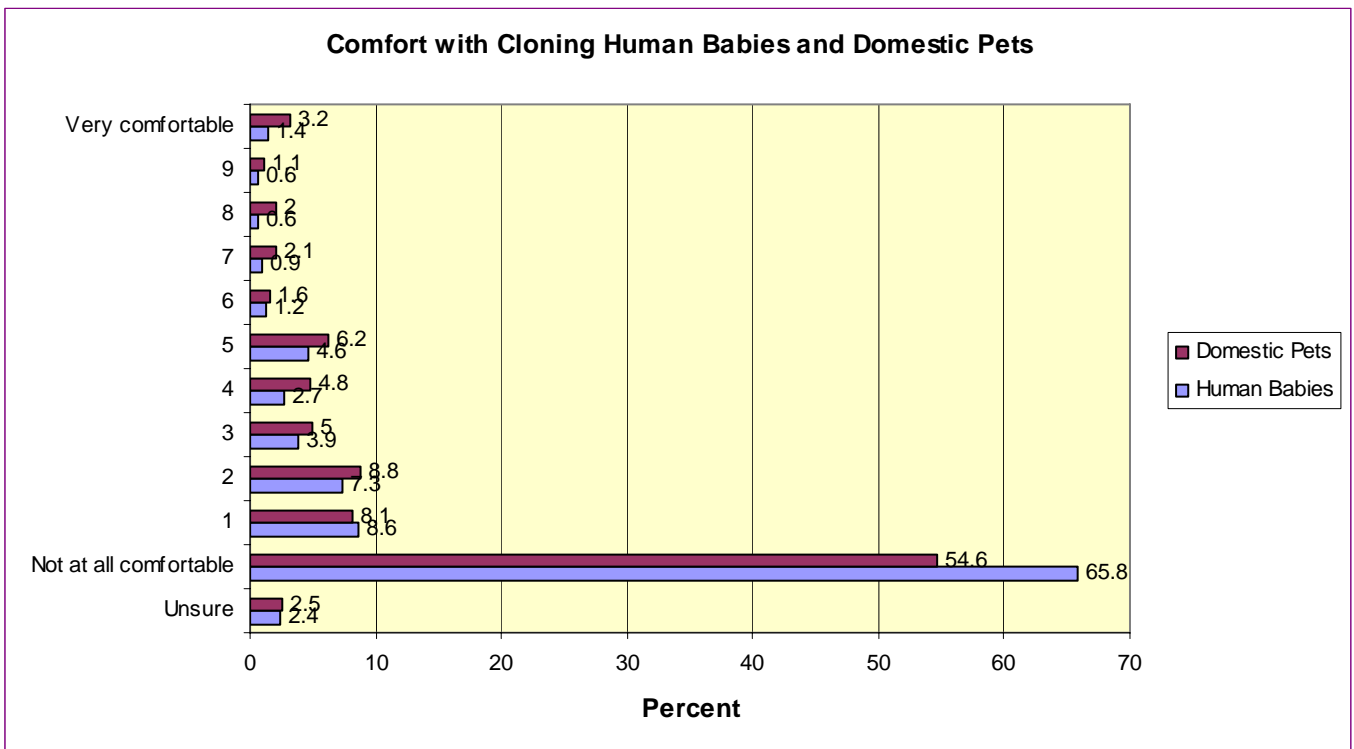
## Comfort with Cloning Human Babies and Domestic Pets

Previous Monitor surveys have found that Australians are very uncomfortable with the idea of cloning human babies. This year we thought we would see if Australians held similar views about cloning domestic pets. Our findings suggest that while Australians are very uncomfortable with the idea of cloning, they are more comfortable with cloning domestic pets (average rating = 1.8) than cloning human babies (average rating = 1.1).

An overwhelming majority of respondents reported some level of discomfort with cloning human babies (88%), but a somewhat smaller proportion were uncomfortable with cloning domestic pets (81%). This effect was magnified for people giving a zero comfort rating, where two thirds of the sample (66%) gave a zero comfort rating for cloning human babies, but 55% gave a zero comfort rating for cloning domestic pets.

While only 5% of the respondents reported some comfort with cloning human babies, ten percent reported some comfort with cloning domestic pets. A similar proportion of respondents were unsure of their comfort level for cloning human babies (7%) and cloning domestic pets (9%).

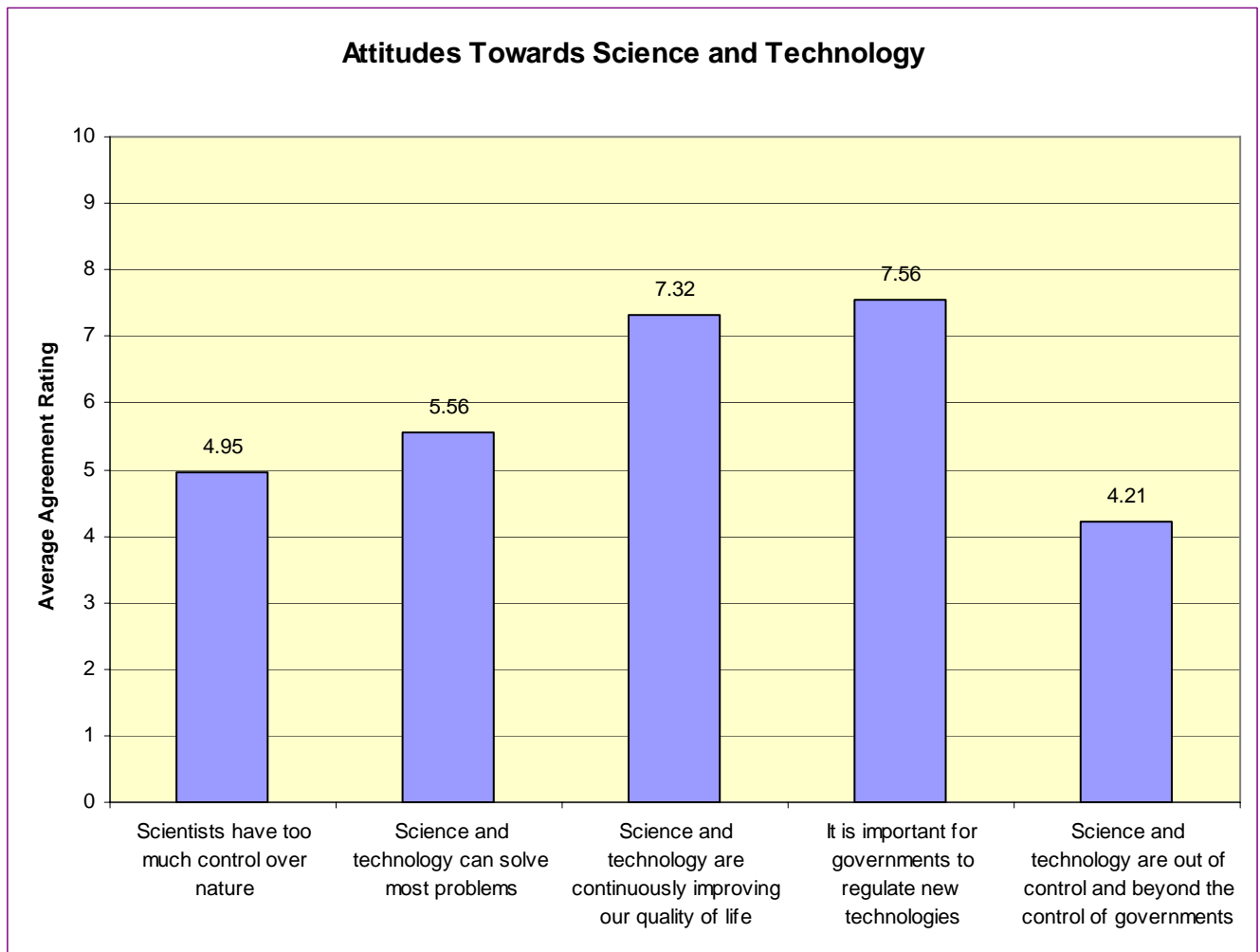
Men were significantly more comfortable than women with cloning both human babies and domestic pets.



# Attitudes Towards Science and Technology

Australians generally agree that science and technology are improving our quality of life, and think it is important for governments to regulate new technologies.

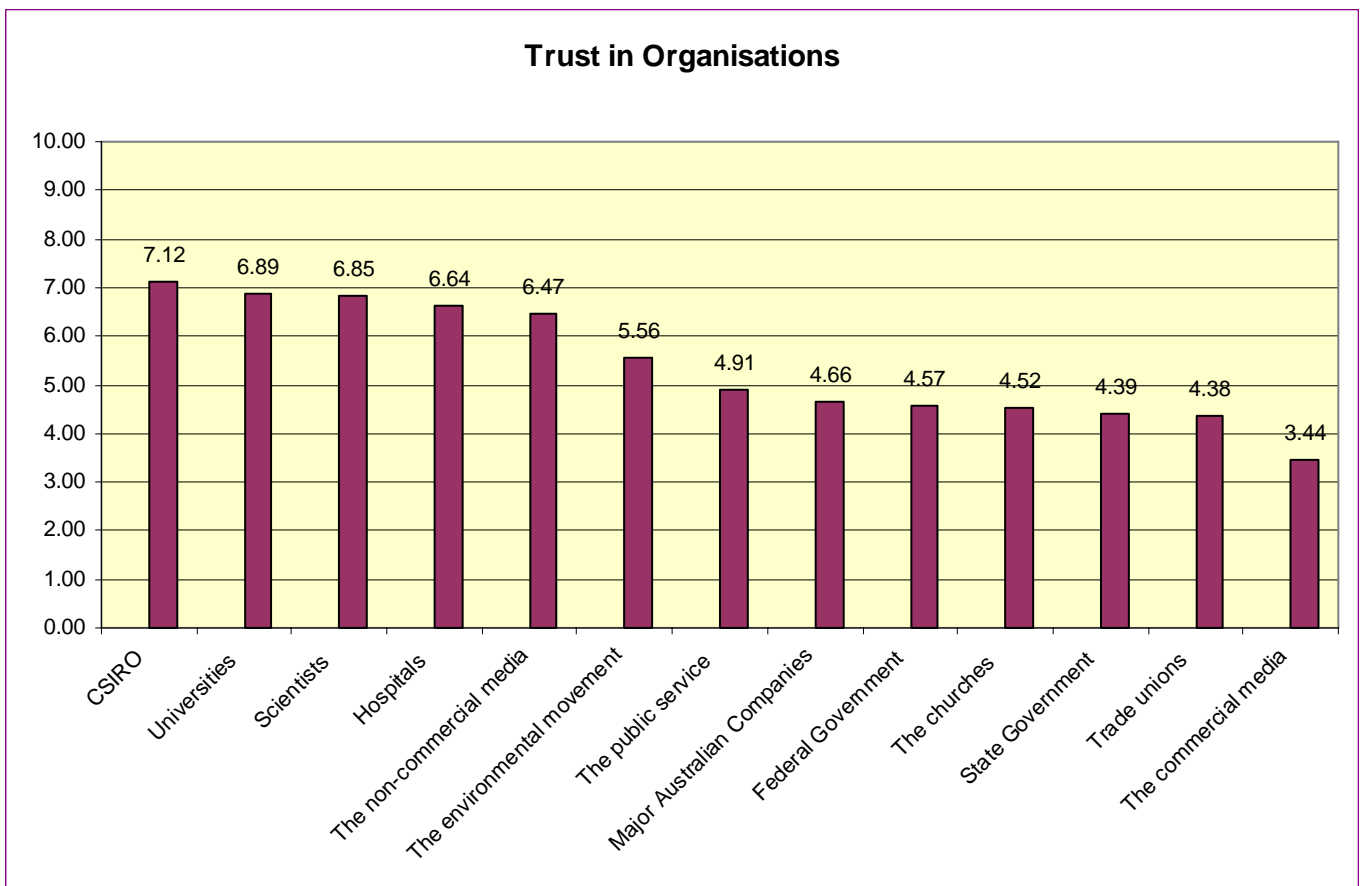
There is somewhat less agreement about the level of control scientist have over nature, the degree to which science and technology can solve problems faced by human beings and the level of control that governments have over science and technology.



## Trust in Organisations

Since 2003 the Monitor has consistently found that Australians have most trust in scientific institutions (such as CSIRO, universities and hospitals) in relation to information about science and technology, and the least trust in the media. In 2003 the average rating for trust in the media was 3.2.

In 2006 we wanted to see if the level of trust differed between commercial and non-commercial media. Our findings show significant differences in the level of trust in the different types of media. The level of trust in non-commercial media (average rating = 6.5) is very similar to the level of trust in scientific organisations. By contrast, the level of trust in the commercial media is the lowest of all the organisations (average rating = 3.4) with a result similar to that reported for 'the media' in 2003. This would suggest that when asked about trust in 'the media', respondents were more inclined to think of the commercial media.



# Focus on Stem Cell Research

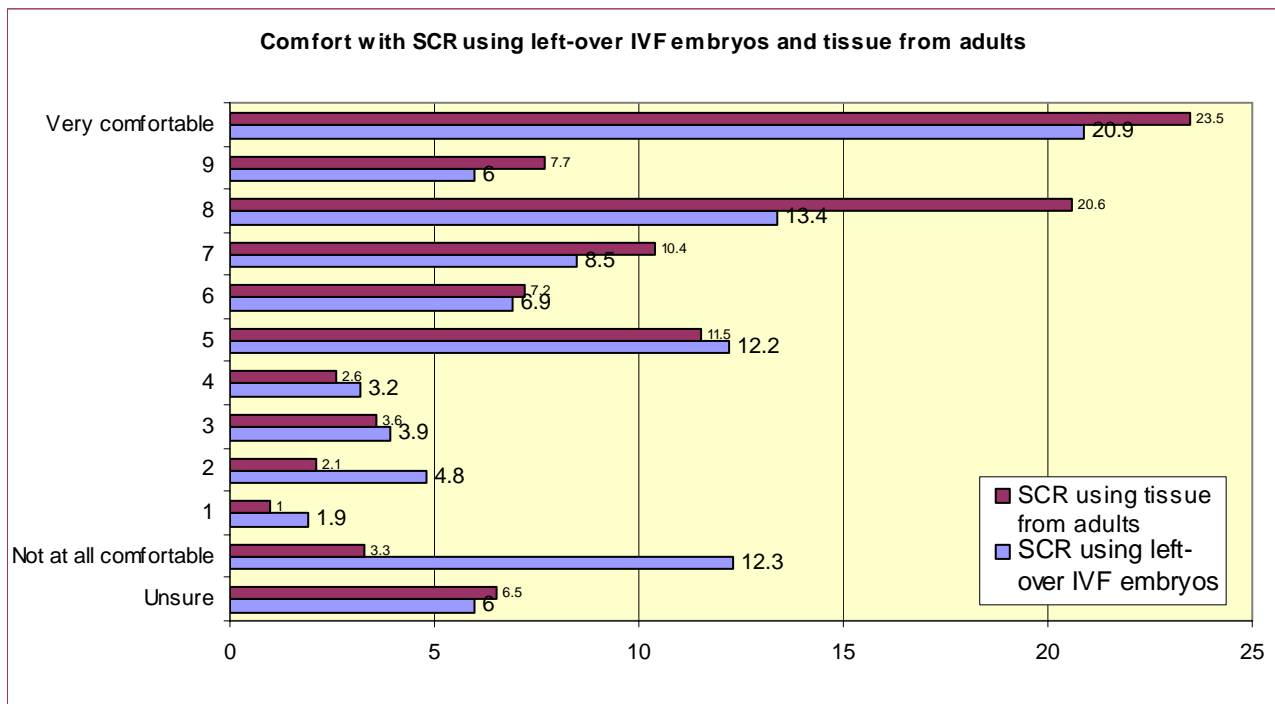
## Key Findings

1. Most Australians are comfortable with stem cell research using either tissue from adults or left-over IVF embryos. Australians are generally uncomfortable with or unsure about stem cell research using therapeutic cloning.
2. In general Australians believe that potential benefits are likely for a wide variety of people if stem cell research is allowed to continue. The exception is the likely benefits for themselves personally, where most Australians believe they are unlikely to benefit from stem cell research.
3. Men are more comfortable than women with different types of stem cell research and more likely to see potential benefits of continued stem cell research.

## Comfort with Different Types of Stem Cell Research

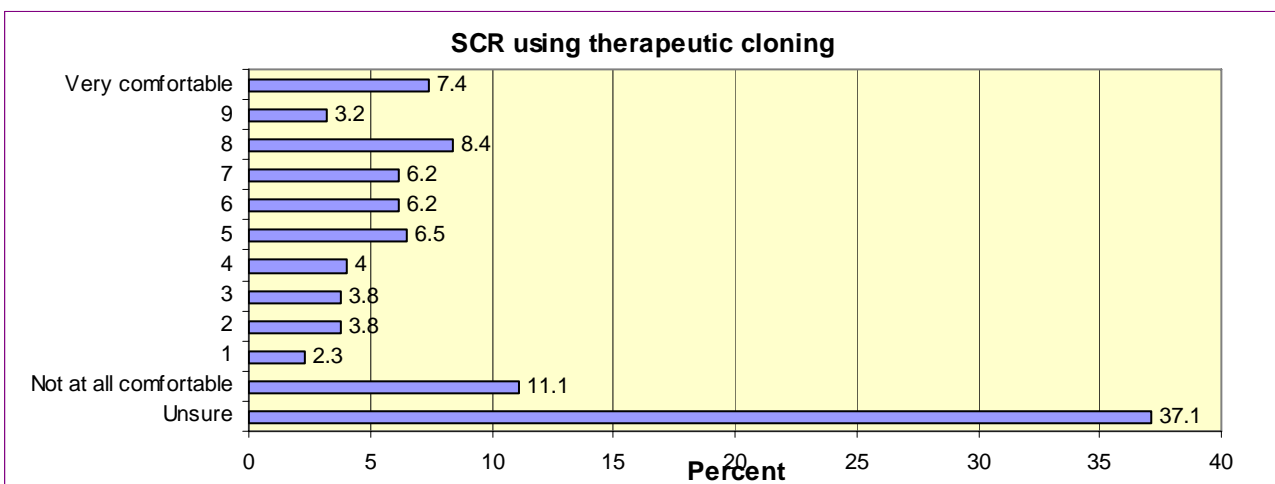
The overall pattern of responses was somewhat similar for comfort with stem cell research using left-over IVF embryos and tissue from adults. The majority of respondents were comfortable with these research methods; however a greater proportion of respondents (69%) were comfortable with using tissue from adults as compared to using left-over IVF embryos (56%). Thirteen percent of respondents were uncomfortable with using tissue from adults while 26% were uncomfortable with using left-over IVF embryos. A further 18% of respondents were unsure of their comfort level for each method.

Men were significantly more comfortable than women with both research methods.



When asked about stem cell research using therapeutic cloning, a large proportion of respondents (37%) reported being unsure of their comfort with this research method. Twenty five percent were uncomfortable with this research method, 6.5% were neither comfortable nor uncomfortable, while 31.5% reported some degree of comfort.

Men were significantly more comfortable than women with this research method.

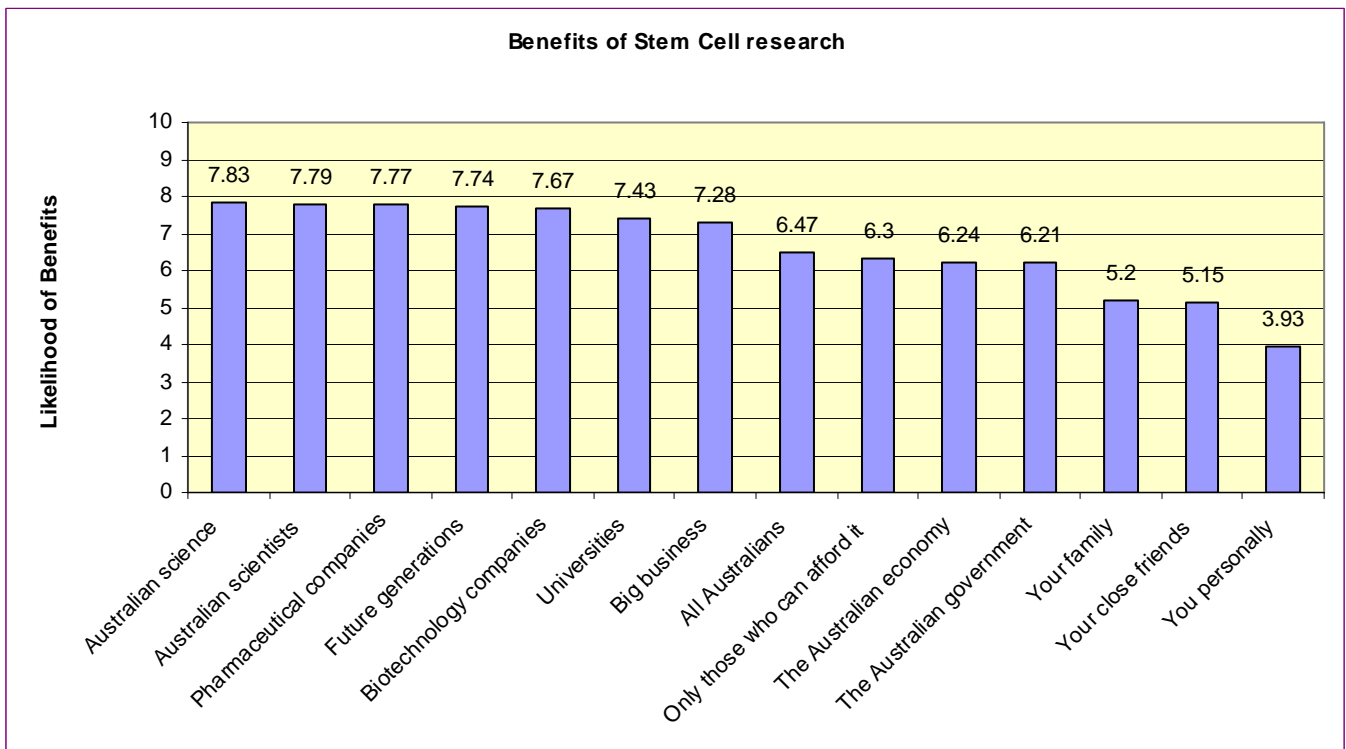


## Possible Benefits of Stem Cell Research

Respondents were asked to rate the potential likelihood of benefits of stem cell research on a scale from 0 (no benefits are likely) to 10 (benefits are extremely likely) for several categories of people.

In general, Australians were positive in their beliefs about the potential benefits of stem cell research. While most respondents (70%) did not believe they would personally benefit from stem cell research (average likelihood rating = 3.9), and many respondents (58%) were unsure of the potential benefits for family and close friends (average likelihood rating = 5.2 for both), all other categories of people and organisations were rated as likely to benefit from continued stem cell research (average likelihood rating ranging from 6.2 to 7.8).

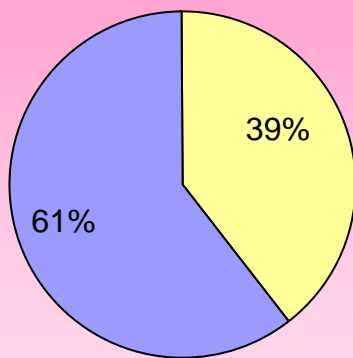
There were no gender differences in the perceived potential benefits for all Australians, the Australian government, pharmaceutical companies or big business. Women were more likely than men to see possible benefits for 'only those who can afford it'. For all other categories, men were more likely than women to see potential benefits.



# The National Survey Sample

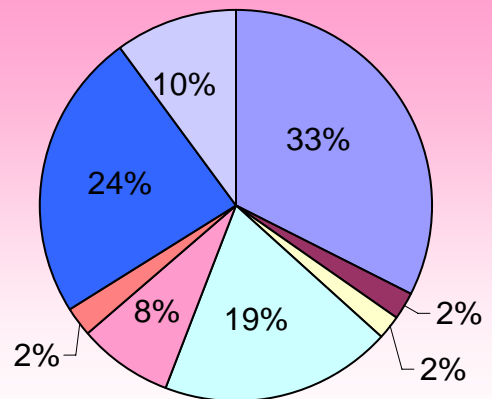
1000 respondents took part in the 2006 national survey. The following charts provide a graphical representation of the percentage of respondents in each demographic category.

**Gender of Respondent**



■ Males ■ Females

**Home State**

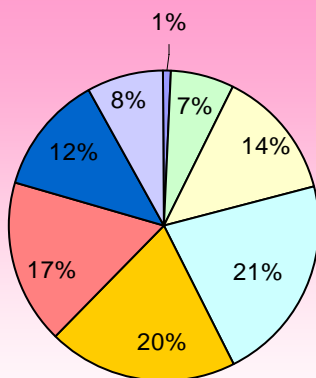


■ NSW ■ ACT ■ NT ■ QLD  
■ SA ■ TAS ■ VIC ■ WA

Sixty one percent of the sample was female and the average age of the respondents was 52 years.

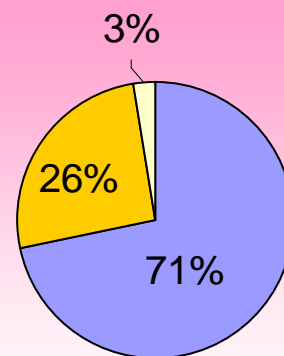
All states were represented in the sample and the majority of the respondents lived in urban areas.

**Decade of Birth**

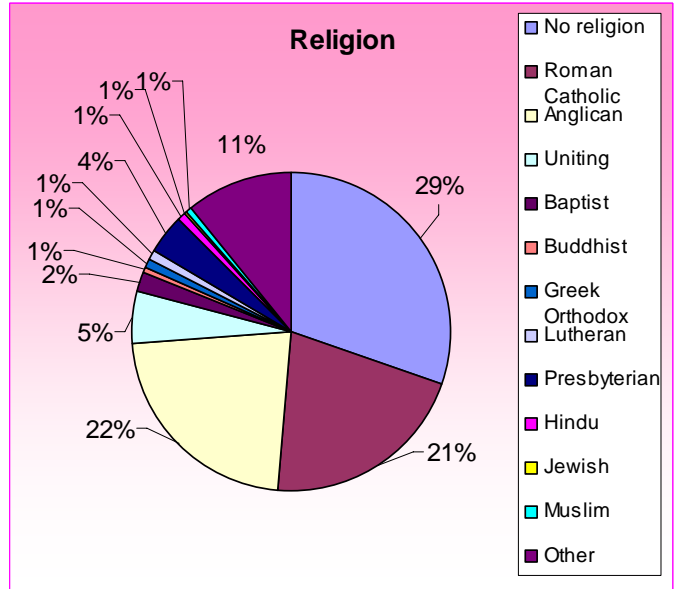
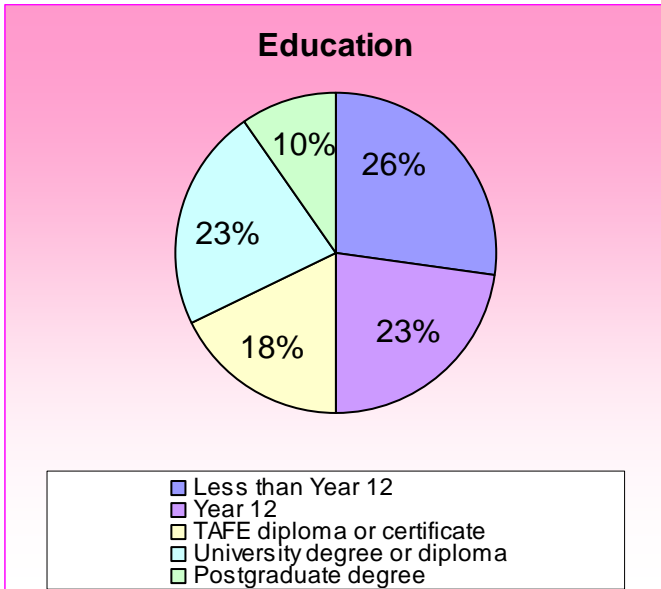


■ Before 1920 ■ 1920 ■ 1930  
■ 1940 ■ 1950 ■ 1960  
■ 1970 ■ 1980

**Geographic location**

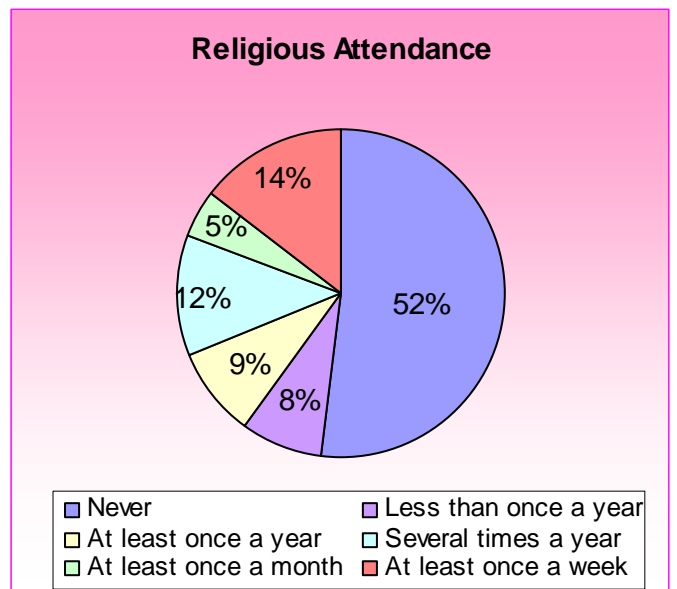
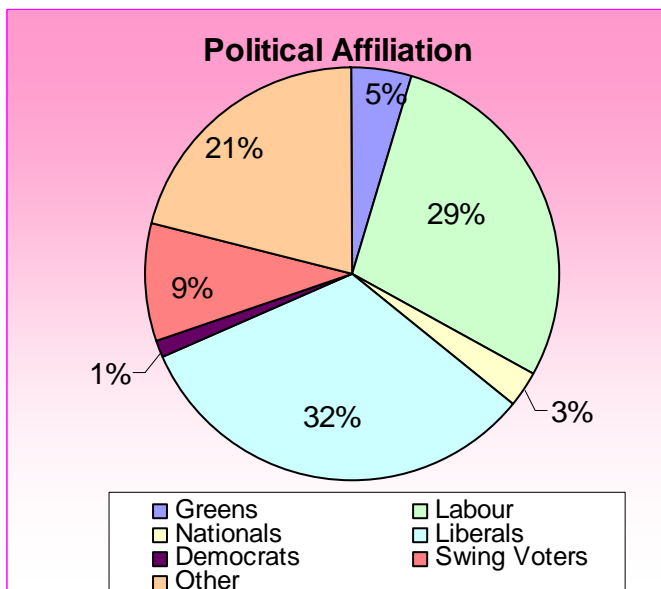


■ Urban  
■ Rural  
■ Remote

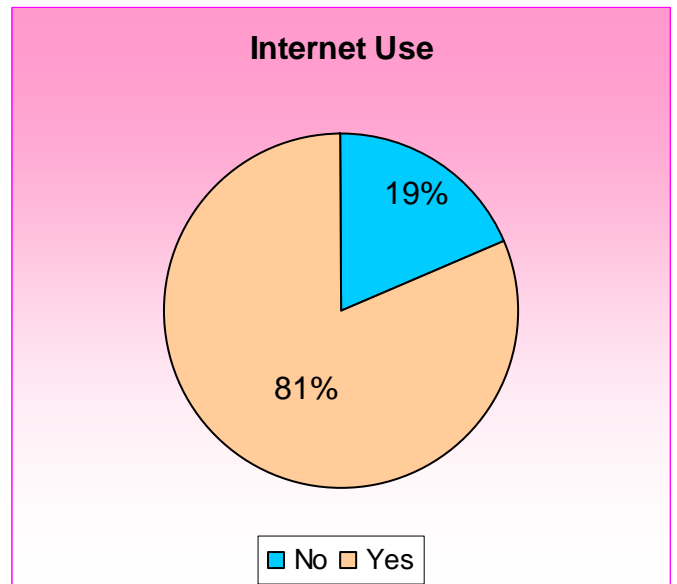
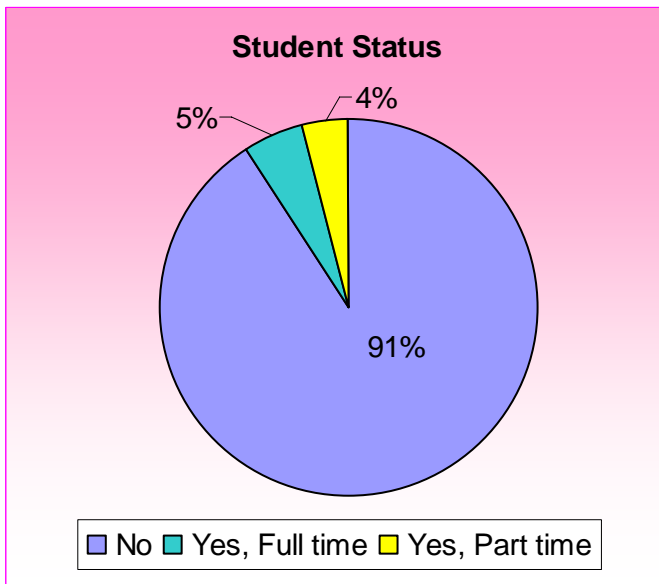
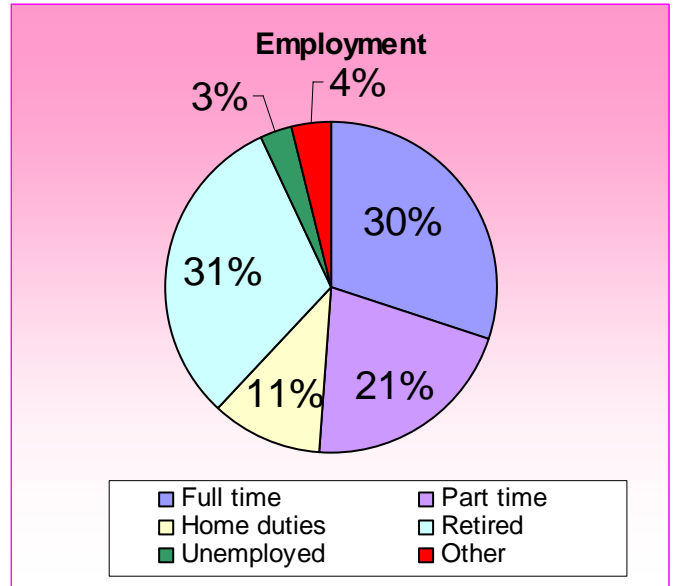
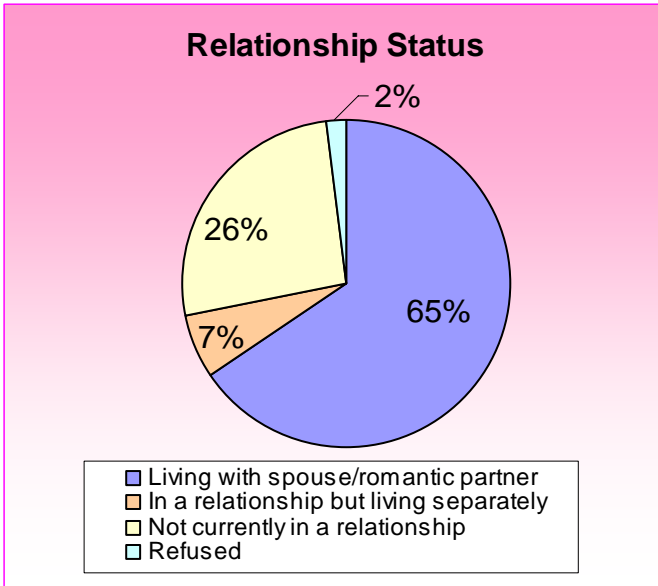


Approximately half of the sample (51%) had completed tertiary education. Political affiliation was split mainly between the Liberal (32%) and Labour (29%) parties.

Twenty nine percent of the sample had no religious affiliation and fifty two percent of the sample never attended church. Of those who did attend church, 14% did so at least once a



The majority of the sample was living with a partner (65%) and employed (51%). Most respondents had used the Internet (81%) and very few respondents (9%) were students.



## The Monitor Team

The Australian Centre for Emerging Technologies and Society (ACETS) is a Tier 2 Research Centre at Swinburne University of Technology. It consists of more than twenty academics and research staff, including psychologists, sociologists, media and policy specialists.

The following members of ACETS (in alphabetical order) contributed to the production of the 2006 Monitor:

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