

Nano-Tech

Big results from small technology

Nano-Con Project

CONFIDENTIAL

Dear researchers

The Nano-Conscience Project

Incredible things will be possible in the future using nano technology. Nano comes from the Greek word Nanos. It means small. Nano technology is the use of tiny machines and computers. At *Nano-Tech*, we like to think that small machines are capable of big things. That is why we are in the business of designing and making them.

We are writing to your group to ask you to take part in an exciting experiment to research and test one possible use of nano technology. Together, we will try to answer the question: Can nano-technology help people to be good?

Imagine that a small computer, no bigger than a speck of dust, could be fitted inside people's ears. It would speak to them in a voice that sounded just like their own. The computer would work like a conscience, telling people the difference between right and wrong. But it might not be really like telling. It could be more like thinking, if thinking is listening to an inner voice.

The biggest problem is how to program the nano conscience so that it does the job. There are two alternatives we'd like you to try out. You can read about them in the document called *Two systems for Nano-Conscience programming*.

We want all our researchers to work in groups made up of two teams. Each team will use a different method to program the Nano-Conscience. They will then exchange programs and test them (see our instructions called *Testing the programs*).

Finally, the groups will discuss their findings and write a final report. If your teams can think of other programming systems, then try to work out the details and then test them in the same way.

Your work will help us decide if a Nano-Conscience could be successful and whether we should go ahead with production.

Yours faithfully

John Morbius
Chief product designer
Nano-Tech

Two systems for Nano-Conscience programming

Introduction

From now on the person fitted with the Nano-Conscience will be called 'the subject'. The situations when the Nano-Conscience is programmed to speak will be called 'moral situations'. These are times when the subject could do something either good or bad.

The programming language

Nano-Tech has developed a programming language that can recognise and produce 'real speech' as it is used in everyday life. We have already developed part of the program to recognise *moral situations*. That will make your jobs as researchers and testers easier. Your task is to work out what the Nano-Conscience will say to *the subject*.

Programming system one (PS1): The ten rules of goodness

Make a list of the ten most important rules to remember if people are to be good rather than bad. It is very important to put your rules into order with the most important at the top. Then the Nano-Conscience will always be able to choose which rule to speak, even in situations where more than one rule could be chosen. Putting the rules into order will be easier if you discuss your choices fully and give reasons. Keep a record of your reasons.

Programming system one (PS2): The results method

One way to decide what to do in a *moral situation* is to predict what the results of possible actions will be. 'Good' results are those that benefit most people who could be affected by the actions.

It will not be possible for the Nano-Conscience to guess the results of *the subject's* actions in the real world. But it would be possible for it to speak a list of questions to *the subject* and insist that *the subject* answers the questions before taking any action in a *moral situation*. Answering the questions would make *the subject* think and say aloud what the possible results or *consequences* of his or her actions would be on all the people who might be affected. The final questions would be about what *the subject* should do in the *moral situation* and *why*?

Your task is to make up the list of questions to take *the subject* step by step through the processes of predicting and deciding. You should be very careful to use clear wording and to put the questions in the best order. Make sure your team discusses these issues fully before making a final decision.

The question of punishment

It would be possible to program the Nano-Conscience so that it sent out a painful high-pitched noise. This could be used if the subject fails to follow the rules chosen by the Nano-Conscience or refuses to answer its questions about results. Each team should decide whether this punishment should be built into the product. Discuss and record your reasons.

Testing the programs

Once the design teams have worked out the programs in detail using each of the systems, the testing teams should go to work.

Guidance for testing groups

Your task is to create short descriptions of *moral situations* in story form. Your characters should be fictional. Then imagine those characters with a Nano-Conscience fitted and programmed as the other teams designed. Judge whether the Nano-Conscience will be able to help the characters to act in the best ways. To make your test effective, think of some *moral situations* where the choice would be easy and some where it would be difficult.

You should then share your findings with the design groups and ask for reactions. Then write or discuss a report together for each of the tests. Use these headings to organise the report:

1. The programming system (one or two)
2. Details of method (the lists written by the design groups)
3. The moral situation (the story written by the testing groups)
4. Conclusion (the testing groups' ideas on how the method would work in this situation. Also the testing groups' ideas on what the subject should do)

Final conclusions

After trying out each method on a number of stories, design and testing groups should join together to write or discuss their general conclusions for each system. Use the following headings to organise the conclusions:

- Will this method make the subject a better person?
- Will this method make the subject do good?
- Will this method make the subject avoid doing bad?

Two points of view

You will have reached some important and valuable conclusions for our project. We'd now like you to read two short letters about the Nano-Conscience project and discuss your own reactions to them. The first is from a member of our team who doesn't think the idea is a good one. The second is a reply from John Morbius, our chief project designer. We would like you to make a list of the questions that come into your mind after reading the letters. The questions will give you a focus for further discussion.

Letter One

Dear John

I don't think your Nano-Conscience will work. Good people gradually grow to be good by learning from the qualities of other good people – qualities like honesty, courage and fairness. Then they try to show those qualities too. We learn these qualities through our feelings. Not by being told what to do. We learn to feel anger at unfairness and warmth when we see an act of kindness. If we are lucky, we develop a good character and that is what is really important in life. If people don't have a good characters, they will not follow good advice anyway. In my opinion, this is not a good use for nano-technology.

Yours sincerely
Mary Johnson

Letter Two

Dear Mary

Our Nano-Conscience is only meant to help people be good. They must also do some of the work. Our conscience will be an inner voice. What if the subjects don't know anything about the Nano-Conscience? They will imagine the conscience's speech to be their own thoughts.

This inner voice may help to coach and train those very emotions that you think are important. Even if people have a good character, they always need to think about what to do from day to day. Our Nano-Conscience will be able to help them. If they refuse its advice, we can use a punishment option. Imagine if the Nano-Conscience were installed in children from an early age. They would learn to guess what it would say. Its thoughts would gradually become their thoughts. It would punish them if they didn't follow its advice. At some stage they wouldn't need it any more. Goodness would be a habit and they would expect to feel pain if they did wrong. We would all live in a better world would we not?

Yours sincerely
John Morbius

Please discuss your questions and record your decisions. Thank you for taking part in our research programme.

Yours faithfully
Alex Frankel
Managing Director
Nano-Tech