

# Cito Kijk- en luistertoets Engels

## Transcript bij fragment Neuromarketing

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Presenter: This is the technology that is transforming what once was science fiction into just plain science. It's a specialised use of MRI scanning called functional MRI, fMRI for short, that makes it possible to see what's going on inside the brain while people are thinking.

Mr Just: Every time I walk into that scanner room and I see the person's brain appear on the screen, and I see those patterns, it's just incredible, unthinkable.

Presenter: Mindreading. What do you call it?

Mr Just: Thought identification.

Presenter: Whatever you want to call it, what neuroscientist Marcel Just and his colleague Tom Mitchell at Carnegie Mellon University have done, is combine fMRI's ability to look at the brain in action with computer science's new power to sort through massive amounts of data. The goal? To see if they could identify exactly what happens in the brain when people think specific thoughts.

Researcher 1: Okay, you ready to get started?

Presenter: They did an experiment where they asked subjects to think about ten objects; five of them tools, like screwdriver and hammer and five of them dwellings like, igloo and castle. Then recorded and analysed the activity in their brains for each. You had them think about a screw driver, and the computer found the place in the brain where that person was thinking: screw driver?

Mr Just: Screw driver isn't one place in the brain, it is many places in the brain. When you think of a screw driver, you think about how you hold it, how you twist it, what it looks like, what you use it for.

Presenter: And each of those functions are in different places?

Mr Just: Correct.

Presenter: Just says that when we think screwdriver or igloo for example, neurons start firing at varying levels of intensity and in different areas throughout the brain.

Mr Just: And we found that we could identify which object they were thinking about from their brain activation patterns.

Presenter: You are reading their minds.

Mr Just: We are identifying the thought that's occurring. It's incredible. Just incredible.

Presenter: Are you saying that if you think of a hammer, that your brain is identical to my brain when I think of a hammer?

Mr Just: Not identical. We have idiosyncrasies. Maybe I have had a bad experience with a hammer and you haven't, but it is close enough to identify each other's thoughts. So, you know, that was never known before.

Presenter: We asked if his team was up for a challenge. Would they take our associate producer Megan Frank, whose brain had never been scanned before, and see if the computer could identify her thoughts? Just and Mitchel agreed to give it a try and see if they could do it in almost real time.

So you've never done an instant analysis as we might say on television.

Mr Just: Nobody's done this, ever.

Presenter: That's actually her brain?

Researcher 2: That's her brain.

Presenter: Inside the scanner, Megan was shown a series of ten items and asked to think for a few seconds about each one. If it all comes out right, when she's thinking hammer, the computer will know she's thinking hammer.

Researcher 2: Right.

Presenter: Within minutes, the computer, unaware of which pictures Megan had been shown, and working only from her brain activity patterns as read out by the scanner, was ready to tell us in its own voice, what it believed was the first object Megan had been thinking about.

Computer: *I think the word is knife.*

Researcher 2: Alright, one.

Presenter: Bingo. Then the second.

Computer: *I think the word is hammer. I think the word is window.*

Presenter: It's perfect right?

Researcher 2: So far.

Presenter: And it continued to be. Word after word.

Computer: *Apartment.*

Presenter: Ten out of ten. Well done. And of course. This is just the beginning. Who knows what you are going to be able to read.

Mr Just: That's right.

Presenter: A little scary actually.

Mr Just: Well, that's our research programme for the next five years.

Presenter: Imagine a world where companies could read our minds too. Light beams may be a bit far off, but fMRI scanning is already being used to try to figure out what we want to buy and how to sell it to us. It is a new field called Neuromarketing. One of its pioneers is neuroscientist Gemma Calvert, co-founder of London company called Neurosense. Do you have a lot of clients?

Ms Calvert: Yes, such as Unilever, Intell, McDonalds, Procter and Gamble, MTV or Viacom.

Presenter: And she says it is a growing field.

Ms Calvert: What we've seen is a sort of snowballing effect over the last few years. I think there are

about 92 neuromarketing agencies worldwide.

Presenter: But some experts question whether it is ethical to scan the brain for commercial purposes and say neuromarketers may be promising more than they can really deliver.

Paul: If you neuro-image my brain and say: “aha, Paul craves chocolate chip cookies”. And I say: “no I don’t”. Now are you going to believe the brain over me? You can only do that if you have proven that that part of the brain lighting up, means in all cases that that person desires chocolate chip cookies. And what a lot of people are doing, is they are just imaging the brain, then they are declaring what that means and they’re never proving that it actually translates into behaviour.

Presenter: So as brain-imaging continues to advance, and find its way into the courts, the market, and who knows what other aspects of our lives, one message is: be cautious. Another is: get ready. Back at Carnegie Mellon, Just and Mitchell have already uncovered the signatures in our brains for kindness, hypocrisy and love.

It’s breath-taking.

Mr Just: Yes.

Presenter: And kind of eerie.

Mr Just: Well, you know, I think the reason people have that reaction is it because it reveals the essence of what it means to be a person. All of those kinds of things that define us as human beings are brain patterns.

Presenter: We don’t want to know that. That it all boils down to, I don’t know molecules and things like that.

Mr Just: But we are, you know, we are biological creatures, you know our limbs, we accept, you know, our muscles and bone. And our brain is a biological thinking machine.

Presenter: Do you think, one day, who knows how far into the future, there will be a machine, that will be able to read very complex thoughts, like I hate so and so or you know, I love the ballet because..

Mr Just: Definitely, definitely. And not in twenty years, I think three, five years

Presenter: In three years?

Mr Just: Well, five.