

THE BIG IDEA: Tickle the brain to trim the fat

Resistance is ingrained in the human brain, says British brain scientist Gemma Calvert, and few efforts are harder for people than losing weight. So she wants to develop a computer game to help people lose the fat more successfully by appealing to the brain's craving for fun and fast feedback. One big caveat: Those who play the game should already be dieting and exercising regularly.

- The game will assign the player an avatar, or digital image of a person, that resembles the player;
- The player will also have to wear a biometric bracelet,

which tracks physical changes such as fluctuations in blood sugar, blood pressure and cholesterol levels. These changes will be recorded in the game, and the avatar will look slimmer or fatter depending on the data recorded;

- The player will also be able to track changes in his subconscious, which govern changes in habits. This is done by taking a brain scan-cum-test of his responses to various words and images associated with diet and exercise.

Want to be the biggest (weight) loser? Game on

Brain scientist hopes to boost dieters' efforts with a computer game, complete with avatar



By CHEONG SUK-WAI
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AFTER all that recent festive feasting, the best way to atone would be to get back on that diet and will yourself thin, yes?

No. Brain scientist and marketing don Gemma Calvert will tell you that if you are relying on willpower to slim down, you are pushing the wrong button in your brain.

Professor Calvert, 45, teaches consumer insights and master of business administration modules at the Nanyang Business School. She says: "Willpower, which is your conscious brain, doesn't work because the deepest changes in behaviour take place in your subconscious.

"The brain likes learnt behaviour and the subconscious has a set of scripts for that. Trying to overwrite those scripts with willpower is extremely difficult."

What's more, the Oxford University alumna points out, humanity's struggle for food ended only in the past century or so – and the brain has not yet snapped out of crisis mode.

So, it continues to crave high-energy foods, which are now disastrous for our health given our increasingly sedentary lifestyles.

The World Health Organisation's latest data shows more than 1.4 billion people are obese, defined as having a body mass index (BMI) of 30 or higher – double the number of chubbies worldwide in 1980. You get your BMI by dividing your weight by the square of your height.

Prof Calvert's big idea is to boost dieters' efforts with a computer game, complete with an avatar, or digital icon, each designed to look like an individual dieter.

By now, you would likely ask: Won't playing a computer game, even one about weight loss, just make one even more sedentary, which defeats the purpose?

But she insists that, as long as one is committed to a healthy diet and regular exercise, her proposed

game will steer its players away from overeating and sloth.

That, she says, is because their avatars will immediately swell unflatteringly whenever they stop exercising and eating judiciously.

The game will change the avatar like so with data from a biometric bracelet worn by the player. The bracelet measures bodily changes such as blood sugar and cholesterol levels.

On top of that, Prof Calvert will use functional magnetic resonance imaging (fMRI) to track changes in one's subconscious by scanning the brain to see which parts of it are most active when stimulated by certain words and images.

The brain scan-cum-test, which uses an fMRI machine and a gadget resembling a car rear-view mirror to flash words and images on a screen, is devised to prevent those tested from fibbing. Those tested have only a split second to respond to various words and images by pushing a button on a provided console.

For example, when an overweight player is first tested, he may push the button whenever the word "Yummy" with the picture of a doughnut is flashed.

But if he commits to healthy eating and exercise, his subconscious will soon be associating the word "Yummy" with images of greens or fish instead.

The snag, of course, is that the fun of playing even the most exciting game would likely wear off if one is made to feel disciplined by it.

Still, Prof Calvert, who is married and has a school-going daughter, remains passionate about its potential. She has also excited her fellow members on the World Economic Forum's (WEF) global agenda council on neuroscience and behaviour.

The council, which has been actively discussing ways to combat obesity and champion sustainable consumption, backs her idea strongly.

Among her supporters is American social entrepreneur Lisa Witter, a champion of empowering women, who thinks gaming would be effective to entice people to lose weight, especially since most dieters are women.



Brain scientist and marketing don Gemma Calvert says relying on willpower to slim down is pushing the wrong button in your brain. ST PHOTO: DESMOND FOO

In an e-mail interview, she says a survey of gamers last year by casual gaming company Spil Games found that there are more women gamers aged 35 or older than male counterparts in the United States, Britain, France, Brazil, the Netherlands and Turkey.

"Gemma is trying to mash up this love for gaming with a desire and need to be physically fit," Ms Witter says.

The council's vice-chairman, French neuroscientist Olivier Oullier, 39, says Prof Calvert's idea toes two ground rules for changing behaviour successfully: One, it must be pitched positively, and two, it must be as easy to adopt as possible.

On the phone from France, Pro-

fessor Oullier, who stresses that he is speaking in his personal capacity and not on behalf of the WEF, says: "A lot of public health strategies assume that people are rational and so if they are informed, they will make the right decisions. But in real life, people are irrational. They respond poorly to brochures, policies, TV shows and any other information that is given to them."

That is why he and Ms Witter believe Prof Calvert's idea will leapfrog the brain's biggest hurdles to changing behaviour, via:

- The sheer effort of changing: The brain has to use up a lot of energy to make the smallest switch. But the brain replaces a bad habit with a good one faster if it is hav-

ing fun doing so. Gaming introduces that vital element of fun;

- The craving for immediate feedback: The brain is hard-wired to prefer short-term gains over long-term boons. So most people would sooner reach for a doughnut than drop a few dress sizes. Having a personalised gaming avatar that grows slimmer if you adhere to a diet and exercise plugs this need for instant feedback, says Prof Calvert;

- The preference for ease: Being motivated by a game that one can easily get good at is powerful in changing behaviour, says Prof Oullier, because the brain likes the path of least resistance.

To be sure, Prof Calvert is not the first person to think of using gaming to help others lose weight.

Neuroscientist Melissa Napoli-tano of Temple University in Philadelphia has also thought of using avatars but of other people, not the players themselves, and without tracking biological or psychological changes.

But while the WEF strongly backs Prof Calvert's idea, it does not fund idea development. So the next step for her is to secure funding to do so.

Singapore-based game developer Chorus Digital, which is in talks with her to develop the game, is helping her do so. But its managing director Graham Lean, 62, knows it is an uphill task.

Mr Lean, who worked for the United Nations High Commission for Refugees in Bangkok in the 1970s, says even crowdsourcing funds for such an idea can be hit-and-miss.

He says: "People give money on the spur of the moment, like when there's a disaster somewhere. But if it's for something that's consistently going to benefit humanity, they're going to think, 'What's the rush?'"

Prof Calvert believes her big idea will be effective because it answers the question most people have before trying anything, which is: "What's in it for me?"

She adds: "If you can see, touch and understand your options for weight loss, rather than be given negative messages, your behavioural change is likely to be more effective."

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Gemma Calvert on...

WHY THE BRAIN DISLIKES CHANGE

"Once it's done a task, that task becomes involuntary and so easier and more efficient to do. Now, if you try to change how the task is done, the brain would have to go back to the beginning and learn that different way. That's why change is so hard."

HOW SHE PLANS TO PROTECT HER IDEA, WHICH CANNOT BE COPYRIGHTED

"Well, one way is that it's inside my head. Others wouldn't know how to do the implicit stuff with the subconscious."

WHAT SHE FINDS STRANGE

"That there is a whole industry of neuroscientists working on the development of the brain and learning, but very little application of those principles in the classroom."

WHETHER OR NOT BOYS SHOULD BE TAUGHT SEPARATELY FROM GIRLS

"Boys mature later than girls, so should we start educating them separately from the latter around puberty? Otherwise, you are putting pressure on boys to make something of themselves at a most difficult period in their lives."

WHAT KILLS CREATIVITY

"Creativity comes mainly from our subconscious, when we are relaxed. So putting kids under pressure negates their creativity."

LATE BLOOMERS, OR THOSE WHO SEEM TO BECOME SMARTER LATER

"We've been going push-push-push with three-year-olds, thinking that if they don't learn something now, they're not going to learn it later. But the reality is the brain is highly plastic and so one's window of learning is long."

THE BIG IDEA IN HISTORY: Are you banting?

BEING slim has not always been the ideal in society.

A 2009 paper in the journal *Nature* noted that mankind's oldest known sculpture depicted a very fat woman carved out of ivory, as did similar fat figurines found later across Europe and North Africa.

In China, curvy concubine Yang Guifei of the Tang Dynasty (AD618-907) is still cited as the epitome of an ancient Chinese beauty.

The ancient Greeks were among the first to prefer svelteness.

Writing in *The Lancet* in 2010, Dr David Haslam and Dr Neville Rigby traced anti-obesity to Hippocrates (460-370BC), who declared that nutrition and exercise underpinned good health.

His junior Plutarch was more cutting: "Thin people are generally the most healthy... The body is a ship which must not be overloaded."

But it was only in the 1700s that Westerners began

studying obesity seriously, with English surgeon William Wadd classifying obesity as a disease in 1829. Then, in 1863, British undertaker William Banting published a pamphlet decrying obesity.

This was after he lost 21kg on a low-carbohydrate diet akin to that championed by Dr Robert Atkins in 1972. The undertaker was so influential that those who dieted were soon said to be "banting".

American doctor Lulu Hunt Peters, a former butterball herself, was the first to publish a guide to calorie counting in 1918.

She urged everyone to eat no more than 1,200 calories a day and unwittingly unleashed fad diets, ranging from the Cabbage Soup Diet of the 1950s to the pineapple-spiked Beverly Hills Diet of 1981 to today's craze, the Paleo diet, which urges everyone to eat like cave people (sample breakfast: two grilled pork chops, a slice of honeydew melon and iced tea).

THE BIG IDEA IN ACTION: Not just fun and games

TOO often, game developers such as Mr Matt Aldrich, 46, have to bear with people insisting that certain ideas and scenarios would be great as games.

The process of creating a successful game is far subtler and trickier, says Mr Aldrich, an award-winning game designer who is the co-founder and director of Singapore-based game developer Chorus Digital, which is in talks with Prof Gemma Calvert to develop her big idea, that is, using gaming to help dieters stick to their meal and exercise routines.

His colleague Graham Lean, 62, who is Chorus Digital's co-founder and managing director, says using games to change people's behaviour began in earnest about five years ago, after the greater use of smartphones meant that most people took to playing games on the go, and not just at their computers or consoles.

But even with a wider captive market, Mr Aldrich says

the creative process needed to take an idea to fruition is long and labourous.

"Scenarios and ideas are not games. It's not easy designing a game that is engaging to most people. It needs to be compelling minute to minute, hour to hour, and make its players come back to it day after day," he points out.

The way to achieve that, he adds, is to play a lot of other games, monitor mainstream tastes and be a stickler for quality. "Quick, dirty and cheap will not get you there," he stresses. Mr Lean estimates that the cost of developing Prof Calvert's idea is between \$300,000 and \$500,000.

They have had two meetings with Prof Calvert so far. When they first met her in 2012, they had already created a prototype weight loss game titled *Fitness Champ*, based on *The Biggest Loser Asia* (TBLA) series, which was aired on cable TV here.

Their game was to have been pegged to Series 3 of TBLA but alas, the show was scrapped

after Series 2.

Mr Lean, who has had a varied career in the United Nations as well as in video and game production, is in talks with an insurance company to underwrite the development of Prof Calvert's idea.

The key, says Mr Lean, is to be able to anticipate accurately what the market wants from a weight loss game.

He says: "If we start off discussing something today, that may change in six months. Those who invent technology often don't actually know whether the people in the market are going to use their inventions as they originally intended."

Even if all of the above is done, Mr Aldrich, who once worked for top game developers Electronic Arts and LucasFilm Singapore, stresses that the lynchpin to a game's success is its visibility in the market. "Marketing, positioning and timing your product are what you need to make a good idea great."

WATCH THE VIDEO

www.straitstimes.com

Gemma Calvert on why the brain makes losing weight so hard



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