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## Meet 'Future You.' Like What You See?

*New 'Virtual Reality' Techniques Could Help Solve The Age-Old Problem of Saving for Retirement*

By JASON ZWEIG

Tessa Price, a 22-year-old college senior, is gazing into a mirror in a virtual-reality laboratory at Stanford University. Looking back at her is Tessa Price—at the age of 68.

Staring into a mirror today and seeing yourself as you will look in the year 2057 is unnerving. But that may be just what it takes to shock Americans into saving more. At Stanford and other universities, computer scientists, economists, neuroscientists and psychologists are teaming up to find innovative ways of turning impulsive spenders into patient savers.



Young people typically don't care about saving for their retirement, since it feels so far away. A Stanford project seeks to close this gap by showing people how they'll look when they are old. WSJ's Jason Zweig explains.

### Take These Steps Right Now

- Sign up for an "auto-escalation" plan that raises your 401(k) contribution each year.
- Put exact dates on your longterm future goals ("I will retire on Apr. 17, 2039").
- Make the future vivid and specific (use photos or music to evoke your retirement haven).
- Nickname your accounts after your children.
- Set up Web reminders to save.

The stakes are high. Employers, having cut back on fixed pensions for years, have pushed workers into 401(k)s and other voluntary retirement plans that offer variable rates of return. Policy makers have tinkered with tax and other incentives to encourage savings. Mutual-fund and insurance companies, sniffing trillions of dollars on which they could earn management fees, have pushed relentlessly to get people to save more.

And yet, according to the [Center for Retirement Research at Boston College](#), 51% of American households are at risk of being unable to maintain their standard of living in retirement, up from 43% in 2004. The center estimates that savings shortfall at \$4.2 trillion, or roughly \$120,000 per household at risk. In sum, despite decades of badgering, Americans are farther behind than ever in their struggle to save.

Behavioral science offers at least a partial answer: To make long-term financial goals more achievable, you must make yourself feel as if the future is now.



F. Martin Ramin for The Wall Street Journal

A model poses with an "avatar" of her future self generated by age-morphing software.

## Good Intentions

One key obstacle is the stubborn gap between beliefs and actions. A 2008 study showed that one in five older people who said they were contributing to a 401(k) or other retirement plan weren't putting any money in; the typical employee overestimated how much he was contributing by 79% (reporting \$2,328 a year, versus the actual amount of \$1,300).

Other research found that 35% of workers who said they weren't saving enough in their 401(k) intended to raise their contribution rate over the next few months—but that only one in eight of them did so.

Why is it so difficult for people to set aside money for the long-term future? Low earnings and high temptations are obvious reasons. But perhaps the most basic cause is a fundamental human frailty: We view our future selves as strangers.

Estimating with any precision what you will want 30 or 40 years from now is almost impossible. You don't know your future desires, because you don't know your future self. What will you want or need when you are 65 or 70 or 80 or older? Who knows?



Reuters

Failing to save enough for retirement during your working life could result in a diet of ramen noodles.

Viewed this way, it isn't surprising that the young typically don't want to save for their retirement, since that stage of life feels as if it will be lived by someone else. And when you save money today on behalf of your remote future self, you deprive your immediate present self of cash you could use right now.

Of course, if you spend tomorrow's savings today, you won't have cash when you need it in the future—but that day of reckoning is decades off. That is true for those of all ages, but the lost opportunity is greatest for young people, because money set aside at an early age has more years to grow.

Yet it is highly unusual for people to think more vividly about their future selves than about their present selves, say psychologists.

Warren Buffett is one rare—and extreme—example. When he was a young man, according to Alice Schroeder's biography "The Snowball," Mr. Buffett often asked, "Do I really want to spend \$300,000 for this haircut?" He was thinking about the vast amount of money he wouldn't have decades in the future because of the small outlay he might make in the present.

The project underway at Stanford seeks to close this gap between the present self and the future self, without turning young people into misers. By enabling the young to see themselves as they will be when they are old, virtual-reality technology can transform their urge to spend for today into a willingness to save for



Zuma Press

Thinking vividly about the future, however, could bring a diet of sushi in old age.

tomorrow.

William Sharpe, the Nobel Prize-winning economist who co-founded Financial Engines Inc., a firm that provides investment advice to retirement savers, says, "The idea of getting people to feel sorry that 'Poor old me, at age 70, is going to need help if I don't save more now'—I regard this not as persuasion, but as additional information." After he heard about the technique, Prof. Sharpe asked to monitor the research and became a co-author of a

forthcoming study on its effectiveness. "It's very promising work," he says.

## *The Proteus Effect*

These researchers are tapping into what is called the Proteus effect, behavioral alterations in the real world that are triggered by changes in how our bodies appear to us in a virtual world.

It can be a powerful tool. [Experiments have shown](#) that if you are sent into a virtual-reality environment with a particularly good-looking "avatar," or digital self-image, you are likely to become more sociable. Seeing your avatar exercising in a virtual world can spur you to add an hour a day to your exercise routine in the real world; people whose avatars do the dirty work of sawing down a virtual tree use less real paper later in the day. Given a taller avatar, you will act more confident and negotiate more selfishly.

How does the Proteus effect make people more willing to save? "Imagine that you just got a horrible haircut or bought a great new suit," says Jeremy Bailenson, a virtual-reality researcher who runs the [Stanford lab](#). "You already know that your physical appearance affects your attitudes, your emotions and your behavior even if you're not consciously thinking about it. The same thing happens in virtual reality, when you become this person with a different body or face. Those features of your avatar affect your mind."

The scientists developed an avatar of the future Ms. Price by using special software to "age-morph" a recent photograph until the young woman's eyes became heavily lined, her smile faded and her blond hair went steel gray. Less than four years out of high school, Ms. Price has suddenly become a grandmother.

Ms. Price sees her avatar in a mirror displayed inside a virtual-reality headset. Eight cameras tucked away just below the ceiling of the laboratory capture Ms. Price's precise position in the room, so the older avatar she sees in virtual space replicates the movements the young woman makes in real space.

As today's Ms. Price moves, the Ms. Price of tomorrow mimics her movements with uncanny precision. "She seems a bit more worn, less fair-skinned," Ms. Price says as she gazes face to face at her future self. Ms. Price leans forward, then back, and her older mirror image moves with her. "She seems somewhat reserved, not that engaged. I feel like, I feel like there's some sort of resemblance, still ... I don't know that she necessarily looks exactly like me, but I see how she could be me."

After about three minutes, Ms. Price doffs the virtual-reality goggles. She sits down at a computer terminal and answers a set of questions about time and money.

If Ms. Price is typical, she could emerge from this experience willing to save more. "People who see their future selves end up being more patient," says Hal Ersner-Hershfield, a psychologist at the Kellogg School of Management at Northwestern University, who led the project.

In one experiment, young people who saw their elderly avatars reported they would save twice as much as those who didn't. In another, students averaging 21 years of age viewed avatars of themselves that smiled when they saved more and frowned when they saved less. Those whose avatars were morphed to retirement age said they would save 30% more than those whose avatars weren't aged.

The potential real-world applications of the Stanford research are promising. "An employee's ID photo could be age-morphed and placed on the benefits section of the company's website," says [Dan Goldstein of London Business School](#), another psychologist who worked on the project.

"From there," he says, "we're just a few clicks and a few minutes away from someone making a lasting decision that can be worth thousands [of dollars]." No employee's photo would be altered without permission, to minimize any concerns that people were being manipulated into saving.

Cathy Smith, co-director of the Allianz Global Investors Center for Behavioral Finance, says Allianz—one of the world's largest asset managers—hopes later this year to devise a simpler version of the Stanford technology. The firm would make it available free of charge to financial advisers "so they can incorporate it into their practice to

encourage clients to save," Ms. Smith says.

You might, for example, give your financial adviser a photo of yourself. Later, while reviewing your saving plan, he might show you an age-morphed avatar and ask you how your future self would feel if you end up short on money in retirement.

Age-morphing isn't the only technique that can enable savers to feel as if the future is now. Several other experimental ideas from academic laboratories show promise in the real world.

- **Automatic escalation.** About 40% of retirement plans, according to the Profit Sharing/401k Council of America, sign up employees automatically, meaning no action must be taken to begin saving for retirement. Many workers contribute only at the low initial rate their employer signs them up for, usually 3%. but "auto-escalation" programs, which enable employees to raise their contributions by a specific percentage, say by 1% annually, can address that problem. Only about 9% of workers who are eligible for such programs choose to participate, however, according to Fidelity Investments. If your plan offers such a feature, sign up.

- **Set a retirement date today.** "Referring to a specific age helps you transport yourself into the future and think of the needs you will have then," says [Shane Frederick, a marketing professor at Yale School of Management](#). He found in one study that people were willing to wait nearly 40% longer for a larger reward when they were prompted to think of getting the money at an exact future age.

To encourage yourself to save more patiently, you could christen an account with the date on which you expect to retire, say "The March 26, 2036, Fund," or simply "For When I'm 60."

- **Web tools.** Derek Koehler, a psychologist at the University of Waterloo in Ontario, [has found that visiting a website](#) to fill out biweekly progress reports can enable people to boost their savings. Those who monitored their progress—by seeing how much they wanted to save and their deadline to achieve it, and then reporting how much they had set aside so far and whether they still were on track—were almost 20% more likely to hit their savings target than those who didn't fill out the reports.

People consistently deny the need for such prompting, says Prof. Koehler, but there isn't any denying that the prompting is effective. There isn't a reason why you couldn't use a smart phone or calendar software to set up do-it-yourself prompts.

- **Getting specific.** Research sponsored by ING Financial and conducted by behavioral scholars Shlomo Benartzi of UCLA, Sheena Iyengar of Columbia University and Alessandro Previtro of the University of Western Ontario shows that when people spend three to five minutes imagining and writing down how they would feel in a comfortable and worry-free retirement, they become roughly 25 percentage points more likely to increase their savings on the spot. (Elaborating on the negative consequences of undersaving also works, but not quite as well.)

### *The Shadow of the Avatar*

Back in the lab at Stanford, after she steps back into the real world from virtual reality, Tessa Price is still slightly unsettled by coming face to face with her future self.

Describing how she answered the experiment's survey questions about spending and saving, Ms. Price says, "When the amounts were small, I was choosing to have most of the money right now, tonight. But as the amounts got larger, I found myself hesitating. I don't know if that's because of the avatar, but I found myself pausing to consider it more."

She adds, "I don't think of myself as 65 that often." Perhaps, from now on, she will.

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