Charting a New Map of Life

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The average global life expectancy has more than doubled since 1900, but constructive changes to the world itself—from the built environment to cultural norms and expectations about work, education, and intergenerational relationships—have not kept up. APS President Jennifer Eberhardt and APS Fellow Laura L. Carstensen, a Stanford University psychology professor and founding director of the Stanford Center on Longevity, explored the cross-disciplinary thinking and subsequent changes needed to help people "feel a sense of belonging and purpose and worth" during every stage of longer lives.

See all columns by Jennifer L. Eberhardt

 Jennifer L. Eberhardt

EBERHARDT: One of the big themes running through your work is the distinction between aging and longevity. Let's start by talking about that distinction.

CARSTENSEN: People use these words interchangeably, but aging actually refers to the biological processes that occur as the years pass, and longevity is the metric, or how long we're living. The recent changes that we're living through are about longevity much more so than aging. It's not that we've changed as a basic organism in fundamental ways. Rather, scientific advances, public health, and public education changed the world so that more of us are making it to old age.

EBERHARDT: You do a lot of your work through the Stanford Center on Longevity. What problems was the center set up to address?

CARSTENSEN: The meta challenge is that we added roughly 30 years to life expectancy in a single century, yet failed to change the world in commensurately dramatic ways. Our ancestors in the 20th century handed us a gift with no strings attached, an extra 30 years for the average person. We tacked them on at the end—only old age got longer. And now we cry, "The sky is falling," because we're going to have all these old people who don't save enough, don't work enough, and get sick. What we're arguing is that the life course is a social, cultural construction. We can put these extra years anywhere we want, and we can then begin to chart a course forward that identifies the challenges that come about because of longer lives and start finding solutions. It should not be focused only on old age. Rather we need to envision healthy, engaged century-long lives and modify the world so that most people achieve them.

EBERHARDT: As a society, what are some of the steps we can take to become what you would call longevity-ready?


Laura L. Carstensen

CARSTENSEN: We must recognize that we are living in a world that was quite literally designed for young people. Only 4% of the population was over 65 in 1900. The depth of the steps that we take as we go up and down the stairs to get to a subway was based on the presumption that its users were 20-something-year-olds. Think about the distances we traverse at airports to quickly get from one airline to another and make a flight connection. The tacit assumption? Young people are really fast. That's who our world is built around. The knowledge in libraries about illnesses and diseases is about acute diseases that kill young people, and not so much about the chronic diseases that afflict older people.

In a very broad sense, we need to very quickly build a culture, build up that knowledge base, recast the physical environment and deeply rethink social norms so that the culture that supports us allows people to feel a sense of belonging and purpose and worth for 100 years. That's the new metric our children today will very likely reach. It's our duty to make sure that the world that we live in supports these longer lives.

EBERHARDT: What about changes in education and the workplace?

CARSTENSEN: Education certainly has to change. Our educational systems were built for young people. We didn't have public education in the United States until the early 20th century, and initially states required children to complete only a few years of school. Now high school is the end of required education, when you're reaching 17 or 18 years old. Even if you extend your formal education into your mid-20s, that doesn't make sense if your working life extends for many decades, especially during a historical time when information generation and technological advances are so rapid.

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It did make sense, however, if you were going to live to 50, which was the case at the beginning of the 20th century. It made sense to follow those kinds of norms: get an education early; get a job; work like a dog; retire, if you're lucky, for a couple years; and then die. You try to make sure your kids survive, and you launch them off to start their own families, and so on. Again, it made a lot of sense for lives half as long as the ones we have. But if we're going to live for 100 years, we're going to work a lot longer. That means we need to learn a lot longer, and we should rethink what the educational system is about. We need to continue to learn throughout our lives.

EBERHARDT: Through your center, you're developing what you call a New Map of Life. Tell me a bit about that project.

CARSTENSEN: When we founded the Center on Longevity in 2007, we organized our work around three domains: mind, which included emotion, cognition, and social engagement; mobility, which was about physical fitness and the ability to physically navigate the world; and financial security. We argued that those were three legs of a stool, and shoring up all three legs could ensure that most people reach old age physically fit, mentally sharp, and financially secure. We got a lot of work done within these domains, but one thing we kept observing was that if we did a project, say, on financial security, it really involved cognition and physical fitness. And when we worked on physical fitness, we realized it's easier to stay fit when you have a lot of money than when you're poor.

So we kept seeing these connections. And then there were other influences that we weren't addressing that you and I have been talking about—the culture and what we need to know and how we need to change. We decided in 2018 that we needed to be more imaginative and to think more creatively about what kind of world would support very long lives. We gathered about 50 experts from every academic discipline you can imagine: pediatricians, geriatricians, health economists, psychologists, sociologists, climate scientists, educators, but also philanthropists, business leaders, policymakers. We met together at Stanford for 2 days and charged them with saying, "What would a 100-year life look like if it was super high quality? What would you be doing when you were 70, when you were 80? 90? How would childhood, adolescence, middle age need to change to get there?"

We had a fabulous meeting. But as we were leaving the building, a number of us said, "If what comes out of this meeting is that we say we all had a great time for 2 days and then walk away and forget about it, then we really failed."

So next we raised funds to support nine postdoctoral fellows at the Center on Longevity. Each came from a discipline with expertise in one of the domains that we had identified as essential to supporting long life. They were charged with developing reports that analyzed the current state of the domain and developing recommendations that would ensure that more people were able to live healthy, thriving long lives.

They just completed their 2-year postdocs, and it was a fabulous program. We all met each week (by Zoom, after COVID) to provide a multidisciplinary bird's-eye view of longevity with experts from all over the world. One of the most beautiful things about this program is that the fellows came to know

each other and interact across disciplinary lines. For example, the neuropsychologist who studies childhood talked to the folks who analyze environmental exposures that lead to dementia in old age. This was where it got really exciting.

The fellows finished their reports in June, and we hired Karen Breslau, a writer, to weave the reports into a single story. This is what we're calling the New Map of Life, which we plan to launch in November. In short, we're just about ready to take it on the road to policymakers, educators, and thought leaders to begin a substantive conversation about the world changing in pretty profound ways.

EBERHARDT: Wow, that sounds incredible. People often try to achieve that goal of working across disciplinary lines, but often it seems the gaps are too great. You managed to pull this off for 2 years. I wonder if a lot of that had to do with the fact that your project was so problem focused, and people were very interested in that problem.

CARSTENSEN: That's completely right. You know this better than just about anybody because of your work. When you take on a big social problem, whether it's policing or the need for deep culture change around longevity, there isn't a single discipline that's going to solve it. There isn't one expert who knows the answer. It takes multiple voices and perspectives to solve it and still more to implement needed changes. I think you're exactly right that when people try to set up multidisciplinary programs in a generic way, it often fails. I think that's because people struggle to talk across their languages, views, and perspectives. But boy, when you're trying to solve a problem, and you're sitting across the table from an engineer who says, "Just define what the problem is, we'll build it, we'll get there," you want everybody at the table. That's what made this project so exciting.

EBERHARDT: What policies do you hope to change as a result?

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CARSTENSEN: There are lots of relevant policies spanning living wages and educational opportunities. But it isn't just policies. I think we often turn to the government to fix things. If the federal government was going to really address these issues, it would have had to start about 25 years ago, and it didn't. We certainly need to rethink governmental policies at the federal and state levels, but we also need educators, families, and communities. We need neighbors to talk to neighbors about ways that they might change their relationships. I think this effort will be successful only if we can involve lots of different perspectives and leaders and influencers. Employers will need to create new ways of working where people will stay in the workforce into their 70s and 80s and be able to do so successfully. That's not necessarily a federal solution but one driven more by the private sector.

EBERHARDT: In what ways might older people improve the workplace climate? Many people view

what it means to age as being all doom and gloom, but your view is completely different. How do you attach your view to the workplace and the workplace climate in particular? What does age diversity in the workplace bring?

CARSTENSEN: That is a great question. I think the workplace will be central to changing the trajectories of our lives. And to your point that people think about aging as this slow and steady downward slide, we now know that that's not true. There's tremendous heterogeneity in how well people age and how functional they are as they grow older. We know it's possible for people to arrive at the ages of 80 and 90 and be actively involved in communities and workplaces. But the majority of people are not following that kind of a trajectory. We have learned a great deal about the factors that influence whether people do well or poorly across those years.

The challenge is to make changes that benefit the people who need it most. I sometimes find myself saying, "If we were just trying to make things better for the top 1% or the top 10%, we wouldn't have a lot of work to do." If you've got a lot of education, you're respected at work, you're a leader in your field, you're okay and you'll be fine. That's not necessarily true if you work in manufacturing and your job is becoming more physically difficult by the year, or you're uncertain about whether you'll have a job a year from now. Or if you're trying to balance two different jobs with the stress of taking care of your family. That's a recipe for not doing well with age.

The exciting thing is that we know a lot about the factors that lead to the heterogeneity in aging. We know a lot about what leads people to be functionally healthy in their advanced ages versus functionally disabled. And the workplace may account for some of this. There's an analysis from some of our colleagues, Jeff Pfeffer and others at the Stanford Graduate School of Business, where they argue that the workplace can account for up to a third of the difference in life expectancies by social class. We spend a lot of time in the workplace and are affected by its social health and physical health. Are you being exposed to toxins? Can you get good, nutritious food? Are you beaten down over the years, or are you able to remain healthy in doing your job?

Those are things that affect the rest of people's lives, not to mention the quality of their lives while working. So we need to rethink work. Healthy workplaces would help people be more financially secure, more emotionally healthy, and certainly more physically healthy.

EBERHARDT: What are some ideas about changes needed in the workplace that will bring about not just longer lives but lives that are more fulfilling, where people are healthier for longer?

CARSTENSEN: When I talk about working longer to public groups, usually I hear groans when I say, "Of course we're going to work longer. We're living longer." And then I say, "How about if we work better? Let's forget about retirement for a minute and imagine 6-hour workdays and 4-day workweeks. Anybody willing to trade that for a 65-year-old retirement age?" And just about everybody's like, "Yeah, I'm in." So we can work very differently; we can make the workweek more humane.

Here's an area, though, where government policies could be very helpful: If we had higher wages, we could work fewer hours and have higher quality of life. We're also thinking about employers having more flexible hours and providing on-the-job training that lets workers exit the workforce for a while and then reenter. The burden of caring for very young children often falls on women who need to reduce

their work hours or step out of the workplace, which subsequently hurts their financial security. Some start-up companies are focused on retraining and helping people get back in once they've left a particular occupation.

EBERHARDT: That makes me hopeful. I feel like our expectations about living have changed rapidly from when I was coming of age to what I see in my sons—even how they think about things like the expectation of staying at a job for your whole life or being committed to one profession. That's all changed. I think the hurry has changed, too—like the hurry to get a driver's license or to start or finish college. It's all different because they're not thinking, "The rest of my life is contingent on these four years in college."

CARSTENSEN: I think even just as recently as 10 years ago, when a high school graduate said to her parents, "I'm going to take a year off before I go to college," the expectation would be you're never going to college. Now people think gap years are a great idea, and I absolutely agree.

One of the things I learned a lot about through this project involves early childhood. Over the same years that life expectancy got longer, we started putting lots of pressure on really young ones to prepare for college—basically when they're 4. We've got kids getting signed up for elite preschools before they're born and being told they need to do 2 hours of homework when they're in second grade. We just got 30 extra years of life handed to us. How about if we let the kids go outside? Climb the trees, develop healthy habits about sports and physical activities. This isn't to say they won't go to school, but it doesn't have to all happen so intensely or all at once. In early childhood, we just think it'd be terrific if we let kids be kids for a while. You hear about a nature deficit among children. We cut recess from school, we also cut art, we cut music. When we've got more time, why not invest? Invest in those kids so they don't learn to dislike education at very young ages. Instead, help them thrive and enjoy those early years as much as possible.

EBERHARDT: I agree. And enjoy later years as well. I feel like school shouldn't be confined to K–12 or to college. If we're moving out of these different environments and the world is changing so quickly, the whole idea of being a lifelong learner seems more important than ever. Who becomes an educator? What's defined as school and what's education, you know what I mean? People were expected to get all the information we need in life in college, and then just go off and work. You're ready for the world; you don't need to continue to grow and develop. Now the world is changing so rapidly that you can't get all you need in 4 years.

CARSTENSEN: I completely agree. Again, flash back 100 years and the unit of production in this country was mostly the family farm. You could learn most of what you needed by eighth grade: reading, writing, some arithmetic. With that, you could probably run the farm pretty well, in part because technologies weren't changing at the speed they are now. (This wouldn't apply for somebody running a farm today, by the way, because farms now require all sorts of technical, advanced knowledge.) One hundred years ago, our educational system was built around helping people get through 50 years of life in jobs that they would get and keep, and just get better at this one task. If it's making widgets, you make more and get better at it over time.

That's not what jobs are anymore. Jobs and technologies are changing at the same time, so we need to find a way for people to continue to learn and be engaged and productive throughout much longer

working lives, where the speed of change is much, much faster.

EBERHARDT: Speaking of technology, your New Map of Life explores the role that technology can play in healthy aging. It's not just technology changing the world, but technology changing us: who we are, what we're capable of, what we can expect. Could you talk about that?

CARSTENSEN: I think the potential of technological and biological advances is breathtaking at this point in history. We're living longer lives at a time when science and technology are right there to make them higher quality, and it's exciting. But the way we operate today in terms of health is really about disease treatment. In the United States, we have 27 National Institutes of Health, and except for one on childhood and one on aging, they're all focused on a disease. Health care is kind of a euphemism there, because we're not investing a lot in health. We invest in the treatment of disease.

The good news is that technologies are being developed that advance our ability to monitor our physical health long before there's a disease present. They let us know early on if something's changing in our respiration, or if our glucose levels are too high—and before we develop diabetes. When we eat certain foods, we can get immediate feedback about how it's changing our body. If somebody says, "You know, you're drinking a little bit too much wine," you go, "Yeah, but I'll probably be okay." And you don't see any changes, but what if we could see those numbers immediately after a meal? We know, as psychologists, that having that kind of feedback early is much more effective than saying, "Well, your odds just went from 1 in 10 that you might get a disease to 2 in 10."

EBERHARDT: As we're more aware of these tools that we didn't have access to before—even technologies that track sleeping—we'll be better positioned to make healthy changes and course correct.

CARSTENSEN: I think the future of health care is really caring about our health and doing what we can to improve it. There are so many possibilities. There's talk of a pill that you swallow with a microcamera that can see your insides all the way through. Remarkable technologies are being developed that could help us head off disease before it actually develops.

EBERHARDT: I'm wondering if you feel that having access to these technologies will also help us to change our narratives about aging. Evidence of all these benefits to aging doesn't match what people have in mind about what it means to get old. Even the workplace, for example, has things like mandatory retirements. Despite counterevidence, people have these notions and narratives that are hard to dismantle. What can we do to change the narrative of what it means to age in a healthy way?

CARSTENSEN: That's the million-dollar question, right? If ageism persists and we don't give people opportunities to remain engaged or active, we kind of build this self-fulfilling prophecy. We've talked to a lot of employers over the years at the Center on Longevity because we do see the workplace as an area that is ripe for intervention. Employers will say, "Well, older workers are just not as sharp as younger workers. They're not as current as younger workers." And then we say things like, "And do you have training for older workers?" And they say, "Oh, well, we stop training at about 45, because we don't want to invest because they're going to retire." So we have these cyclical patterns of not training older workers who then may not stay up to speed. This needs to change.

I'm really excited about some research on mixed-aged work teams that I think will make employers

much more interested in retaining older workers. What we're finding is that all-young work teams and all-old work teams are less productive than mixed-aged work teams. The idea is that people of different ages and backgrounds working together do better than just a bunch of young people or just a bunch of old people. That's exciting, because what we're really facing today is not so much an aging society, it's an age-diverse society. We've "rectangularized" what used to be a population pyramid, with lots of young people and very few old people. Today, we have almost even numbers of people in this country at every age. To me, this is an incredible opportunity because you can match the skills, strength, desire, and ambition of young people with the knowledge, experience, and prosocial tendencies that we see more in old people. You can imagine all sorts of problems in the world that could be best addressed by a mix of those qualities. For the first time in human history, we've got it; we've got that many generations alive at the same time. If mixed-age work teams are more productive than all young or all old, it's not going to take long to convince employers that older workers are contributing a lot.

EBERHARDT: Although I do worry about that, because the same is said about racial diversity: Where you have racially diverse teams, they perform better, they make fewer mistakes, they're more creative. We've known this for many years now, but people resist the information. I just wonder, what would lead people to accept the benefits that come from age diversity?

CARSTENSEN: It's a really good point, and it's possible that we'll run into similar kinds of roadblocks. Part of what's going to help is that the workforce is actually shrinking, so we have fewer workers to fill positions. People's attitudes toward older workers tend to change when they're running out of workers. Joe looks a lot better than we thought he did when we had a long line of people ready to take his place. I also am excited about the possibilities of young and old working together because older workers share many values with the youngest workers today. They want flexibility and to work in jobs that match their social values more than in the past, when people were taking jobs to make the most money. If the oldest and youngest workers share these basic values about what they want, I think that will also contribute to them wanting to work together. And to the extent that teams are saying, "Yeah, we want some of those [older or younger workers] to make our team better and to make life better," I think they'll feel positive outcomes.

EBERHARDT: Wow, that's pretty cool. Have there been any studies to look at whether people in academia live longer? You don't have the same kind of forced retirement, and you're doing what you love to do. It seems the quality of life would lead you to be healthier physically, maybe.

CARSTENSEN: It absolutely does, in so many ways. Academics tend to live in neighborhoods that are safer, around places that have good, nutritious food. There are lots of advantages, but the one that I think is very important is what you just mentioned—it's about identity and purpose. If you're a chemist and you retire, it's not like you're not a chemist anymore. Whereas if you're a bookkeeper and you retire, you're not a bookkeeper anymore. When people pursue occupations where their identity is about their work, their work helps support their emotional lives in really important ways. Professors live significantly longer than the average person in the population. So do artists, symphony conductors, and Catholic nuns. People whose work is who they are live longer, and we think it may have something to do with the sense of purpose and belonging to a group of people who value what you do.

EBERHARDT: Is there anything else you want to share about the work that you're doing?

CARSTENSEN: The opportunity here is enormous. Longer lives mean we have more time to spend with our loved ones, to chase our dreams, to realize our goals. Living longer is a terrifically wonderful gift. We have this extra time, and it's really up to us find ways to make sure it improves quality of life at all ages and stages. The great thing about this challenge is that if we address it, life gets even better at all stages. But we need to be creative and think out of the box. If we do, we can make century-long lives the best thing that ever happened to us.

EBERHARDT: What a note to end on—very inspirational! I just love what you do. Thanks for taking the time and sharing your wisdom and your work with APS.