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# Psychology, meaning and the challenges of longevity

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## Abstract

Humankind has begun to reap one of the most valued harvests of its scientific and technological pursuits: a significant increase in human longevity. We now live longer than ever before, due in large part to advances in medicine and health care that provide those who have the opportunity to afford them a lifespan that for many approaches or exceeds the 100-year mark. It is now within the realm of possibility that people will live lives of 125 years or more within the next century. However, our ability to increase physical longevity may have outstripped our ability to deal individually and socially with these new lives, these new existences that go well beyond what has traditionally been considered a “working life”. How well-prepared are we psychologically to cope with the meaning of a life that extends to as much as 150 years or more? In this new “age of longevity”, what are the challenges for psychology as a resource for humanity in its quest to give definition to the experience of being alive, as well as for managing the affairs of everyday life? Traditional developmental theories in psychology tend to articulate early stages of life in detail, but are generally mute on the matter of later life. Cognitive psychology has been inclined to view longevity as leading to a deterioration of mental faculties due to “aging”. This paper examines the psychological implications of increased lifespans from an optimistic perspective by reviewing current developments in research on cognition, emotion and aging. The review identifies trends in psychology that, if emphasized and strengthened, may lead to improved theoretical frameworks that cast longevity in a positive light, and that identify how people can find meaning and fulfillment throughout their whole lifespan.

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“Grow old along with me!

The best is yet to be,

The last of life for which the first was made.” *Robert Browning* “Rabbi Ben Ezra”

I first encountered Browning’s works as an undergraduate, and being a pre-engineering student at the time my tendencies toward poetry were stunted to say the best. Few of the great works of literature my teachers compelled me to read at that stage of my life and development made enough of an impact to last beyond the length of the course requiring their reading. Much has changed since then and my interests in literature and what literature has to say that is of value for our lives has deepened. But Browning’s enthusiastic call to join him in aging has always been a fascination. Indeed, what could be more of a contradiction to modern attitudes about becoming elderly than to claim “the best is yet to be”? What can be more of a challenge to how we approach the relationship between being young and being old than to claim that the last of life is “for which the first was meant”? What can the possible rewards of the golden years be that transcend the glorious enthusiasms, unfettered optimisms, and just pure physical conveniences of being young? Or, was Browning simply trying to sucker us all into a *fait accompli*, the hopeful outcome of which is the envy of the very youth that the aged often envy so much?

There is little enough envy of the aged today. I approach these years with great caution, recognizing that how I look upon those who are two decades older than myself will, in turn, condition me to see myself in those years much in the way that I see them now. “Aging” is not something anyone really wants to do. We want to, at best, “grow older”, a perspective that carries with it a more positive spin: growing wiser, growing up, or simply “growing” with all of its new-age connotations of personal enlightenment and becoming. I am not “aging”, I am “becoming at one”.

The language we have adopted to talk about the time-course of life, and particularly about the years in the latter third of that course, does much to frame both how we live those years and how we anticipate them in our youth. Our expectations are ones of decline, physical debilitation and mental infirmity. We “retire”, as in withdrawal into seclusion, away from the mainstream of life and into the backwater eddy of inaction. On the shelf.

Much of this view has been reinforced by how humanity has approached examining this aspect of its own time course through science. We study aging with an eye to how its effects influence the abilities of those so afflicted to perform or operate compared to those who still have a grasp on their full faculties. And, of course, we find that as people grow older, they do not approach life in the same way as do younger people.

Part of our view on life comes from the very way in which science is funded: those interested in the last of life often receive their support from the National Institute on Aging, not the National Institute on The Last of Life for Which the First Was Made. Research agendas often focus on identifying sources of infirmity and potential pros-theses, either physical or social, that can ease the lives of the elderly on their way toward achieving the goal of successful aging. All too often, success in aging means imposing relatively few demands on social resources or on the lives of younger

So, what is the baby boomer generation planning to do with its additional longevity? From what wellsprings and values do they expect to draw meaning from life? It is difficult to look upon the past three or four decades without noticing the enormous accumulation of wealth that accrued to the boomer generation. Not only do they burgeon in numbers, but in economics as well. As a cohort, they are the best-educated and richest group to have lived in the United States, and perhaps in the world. One reflection of how they see their own future is captured in how they anticipate using their accumulated wealth in retirement. Table 1 shows partial results from a survey of “leading-edge” baby boomers—those who are in the age range of 45–55 years and who will enter retirement in perhaps 7–10 years. These data are from a national telephone survey of 400 households conducted in the spring of 2000 [7]. Individuals surveyed were asked about their plans for retirement, including how they planned to use their wealth, concerns they have about retirement, and details of their financial planning.

The entries in Table 1 are the percentage of respondents indicating that each of the uses of wealth shown were “very important”. The interesting result is not so much that these pre-retirees were most inclined to use their wealth for basic financial support and health care, as the relatively small numbers of people who plan to use their wealth for purposes beyond themselves. Bequeathment (e.g. gifts to children, charity) were among the uses of wealth deemed least important. Though people talk much these days of accumulating wealth and building estates, the reality appears to be that their plans are to consume within their own lifetime whatever they have accumulated during their income-earning years. The notion of estate building in the classical sense of leaving a financial legacy to one’s progeny and their future generations is largely absent from what we might call the broader middle class concept of wealth.

Table 1  
Importance of wealth uses in retirement

Use of wealth in retirement	Percent “very important”			
	All ( <i>n</i> = 396)	Females ( <i>n</i> = 168)	Males ( <i>n</i> = 228)	Difference <sup>a</sup>
Basic financial support	89.7%	93.5%	86.8%	+6.7%
Health care	85.4	88.1	83.3	+4.8
Long-term nursing care	51.0	58.3	45.6	+12.7**
Education for children/grandchildren	48.5	47.0	49.6	-2.6
Leisure time	32.6	28.6	35.5	-6.9
Gifts to children	18.2	20.2	16.7	+3.5
Travel	16.2	14.9	17.2	-2.3
Education for self	10.4	8.3	11.8	-3.5
Gifts to charity	9.9	11.3	8.7	+2.6

<sup>a</sup> Signed difference; positive values indicate greater importance for females than for males. \*\* $p < 0.01$ ;  $\chi^2$  test.

If the contents of Table 1 are truly reflective of where the wealthiest generation is with respect to thinking about the future, the future does indeed have a very short-term definition. Furthermore, if we consider how people manage their financial lives in contemporary society, we can see that one of the greatest risks to the concept of “future” is to the very definition of future itself. By and large, those who seek to secure their financial future do so by investment in markets. Yet when we observe the investment behavior of market participants, we see that what many people do when they “invest” is actually more akin to speculation. Though people tout the long-term expectation of financial markets as a reason to invest, their expectations of market returns are based largely on only the most recent years, which have generally been high. Moreover, when people judge how well markets will do in the future, their judgments bear little relationship to the actual potential for returns, and are strongly rooted in images and perceptions [8]. In contemporary society, long-term investing is often a matter of months, rather than a matter of years. For many people, the concept of a time horizon has become drastically shortened to the point that the notion of a future beyond a matter of a few years is psychologically meaningless, at least in the context of investment.

As people approach their retirement years, with their wealth in hand, what do they anticipate will be their challenges? What will dominate their interests and their concerns? Table 2 provides some indication that though people expect to accumulate wealth, they expect to worry about how to spend it.

While people appear to have strong concerns about some types of costs, such as

Table 2  
Retirement concerns: Gender differences

Retirement concern	Percent “high concern”			
	All ( <i>n</i> =396)	Females ( <i>n</i> =168)	Males ( <i>n</i> =228)	Difference <sup>a</sup>
Health care costs	80.6%	83.9%	78.1%	+5.0%*
Having enough money	68.9	72.6	66.2	+6.4%
Being happy	68.7	68.5	68.9	-0.4
Meeting basic living expenses	67.7	70.8	65.4	+5.4
Health care availability	66.7	67.3	66.2	+1.1
Pharmaceutical drug costs	63.9	67.9	61.0	+6.9
Taxes	55.3	58.3	53.1	+5.2**
Personal safety & security	54.6	56.0	53.5	+2.5
Social Security system	49.0	54.8	44.7	+10.1
Inflation	45.5	49.0	42.5	+6.5*
Performance of financial markets	39.4	47.0	33.8	+13.2*
Availability of suitable housing	36.9	39.9	34.7	+5.2
Deflation	19.2	23.8	15.8	+8.0***
Transportation costs	10.7	27.4	15.8	+8.9**

<sup>a</sup> Signed difference; positive values indicate greater concern by females and than by males. \**p* < 0.05;  $\chi^2$  test. \*\**p* < 0.01;  $\chi^2$  test. \*\*\**p* < 0.001;  $\chi^2$  test.

see studies in cognitive psychology that point to declines in abilities with aging, such as tasks that place a premium on new learning or speed of responding [9]. However, when the context of cognition is shifted to everyday life with all of its complexities, the relationship with laboratory task performance is less clear. In tasks such as a social problem solving and choice that require “practical intelligence”, older people do much better than laboratory studies would suggest [10]. Everyday life is filled with situations that require the application of experience; situations that are ambiguous and must be interpreted in terms of what one has gleaned from the past. In these situations, ones that involve the “coordinated use . . . of factual and procedural knowledge of life”[11], older people do quite well; sometimes outperforming younger people [12].

We can be somewhat optimistic about the current trend in research on aging that places increasing importance on the fit between the individual and their social context, and that takes greater account of how cognition is dependent on one’s environment. Perhaps the most encouraging research is that which has come to consider more closely how people’s basic motivations might change across their life span. For example, Carstensen and colleagues [13] have found that people’s motivations in later life are often more directed toward achieving emotional goals and objectives rather than cognitive ones. Thus, the sensory experiences that are so attractive and sought after in youth are exchanged for a desire for emotional completeness and fulfillment. We would expect, then, that as people enter the last of life, their sense of fulfillment would come from those things that bring them closer to others rather than material rewards. Indeed, we find in the adaptive responses of people to the cognitive difficulties of aging a tendency to rely on social relationships to accomplish difficult tasks that they would otherwise have done alone in their youth (e.g. Refs. [14,15]). They improve the fit between themselves and their environment by relying on their social milieu, with its accompanying emotional experience of belonging and caring. Thus, the cognitive “declines” that people experience as their years advance are compensated for by an increasing tendency toward an emotionally fulfilling life through relationships with others. The fact of those relationships provides a basis for social support that both meets their emotional goals and provides a means whereby the cognitive requirements of life can be either sustained or supported.

### **3. The challenge of sustained intelligence**

As we have noted above, one of the fundamental challenges of aging is the social stigma that has become attached to growing older. B.F. Skinner, in a personal review of his own aging process and his strategies for adaptation, notes that our society does little to provide positive reinforcement for the behaviors associated with aging [16]. On the one hand, it is clear that as a society we value longevity, given the vast sums of money and intellectual effort we have put into sustaining human life through such things as medical advances (as well as improvements to environmental health and safety). On the other hand, it is less clear that we consistently and positively value those who have achieved longevity and the behaviors that are associated with

living longer numbers of years. At some point in the lives of each of us we become assigned to the other side of the social balance sheet; from an asset to a liability. Where this change in the value of our lives as a social commodity takes place is unclear, but it is probably safe to say that it is somewhere around the time that we voluntarily leave the workforce and take up our role as a “senior citizen”, the privileges of which are dubious and often most obvious in terms of discounts at movie theaters and fast food restaurants.

In part, this ambiguity is the result of our models of maturation and development. Life is an arc, a rainbow that inclines positively to some point and then pitches over into a decline. However, in the rainbow metaphor, the terminus of the arc is a pot of gold; in life, it is simply old age. We see this reflected in the stage theories of development that have had so strong an influence in the social and behavioral sciences. Piaget, for example, and his various stages of intellectual development accounts in great detail for the increasing cognitive abilities of the first two decades of life, leaving the individual hanging precipitously in the stage of formal operations where abstract reasoning abilities peak, thereafter to decline at the mercies of neuronal failure. Freud charts the course of psychosexual development in the formative years of the individual, focusing on the development of infantile sexuality and the transformations of puberty. Alas, however, we are left by Freud as sexually active young adults, fully formed and at the peak of life, to decline as the body and mind fail us in aging. I have always been tempted to ask here why we have no theory of sexuality for the latter half of life. Are we to believe that whatever sexual proclivities (and accomplishments) we developed in our first twenty years are simply to be a source of remembrances in our last twenty? Is life at the front end intended to be an accumulation of experiences and episodes to replay near the end as our attentions drift from the world around us into a personal reverie? I strongly suspect that at least a partial explanation for why modern society has such a fascination with youth is that psychoanalytically-oriented theorists of the late 19th and early 20th centuries gave human development such an exciting spin. The works of Freud, Jung and others that followed illuminated the darkness that surrounded human sexual development and helped humanity understand how it becomes what it does. Ontological fascination has carried us forward for almost a century, directing our focus on the roots of our youth in search of the determinants of our adulthood. “As the twig is bent . . .”.

The real challenges to understanding (and perhaps capitalizing on) longevity may not lie so much in plumbing the depths of our declining abilities, as in grasping the changing nature of consciousness itself as we redirect our energies and attentions toward states of mind and emotion that are new and unexplored. The beginnings of this kind of thinking are evident in new work in psychology directed toward understanding the nature of happiness. Indeed, happiness is back in vogue again, and well it should be since its pursuit is codified as a fundamental right of American democracy. Yet happiness is too often equated with the tangibles in life and with the attainment of material goals and objectives. Csikszentmihalyi [17] asks the question “If we are so rich, why aren’t we happy?” and observes that the relationship between material rewards and subjective well-being is ambiguous—those who have more are

not necessarily the happier for it. Even the very wealthy are barely a JND<sup>2</sup> happier than those who have about average incomes [18]. Alas, lottery winners who by broad social standards should experience boundless joy as the result of their good fortunes, often find themselves no happier than those who have drawn a poorer hand in life, including trauma and disability [19]. When we chart the inclining course of the American standard of living and the prosperity of its population, we see (by some estimates) almost a doubling of after-tax income from 1960 to 1990; yet the proportion of people who, in longitudinal studies, judge themselves to be “very happy” has remained glued to approximately 30% [20].

If happiness has a future, it clearly does not lie in the direction of greater wealth accumulation. One of the challenges we face in overcoming the tendency to equate wealth with well-being lies in how we have sought to define for ourselves a definition of attainment. We greatly value not only money and material wealth, but we value the concept of economics as a basis for the yardstick by which we measure how far we have come in life. For example, it isn’t just goals and objectives that we seek to attain, but *measurable* ones. Indeed, the very notion of “how far we have come” implies a measurement. For many people, life involves an accumulation of goods, the gauging or measuring of which is both an index and an indication of the meaning of their life.

Psychology tells us that it is important (even critical) for people to develop a sense of their identity. But, for many of us, our identities become bound up with material possessions. Some people become (in part) their houses and their cars. If material identity were a channel to happiness, then we would have seen much more of an increase in this all-to-rare commodity over the past several decades than is the case. Were it the case, I (and others like me) should expect ecstasy at about the age 65 when our financial plans reach fulfillment. Unfortunately, I expect that that will not be the case; at least, if I do experience ecstasy it will not be because of my Schwab account.

So, if we are so rich, why aren’t we happy (or at least, happier)? One possibility is that we are happy and we just don’t know it. Put another way, we don’t recognize happiness when it happens, or we are mistaken in what happiness actually is as an experience. You can’t be happy all the time . . . or can you? Perhaps it’s a bit like Michael Polyani’s tacit knowing: the more you try to consciously understand how to ride a bicycle, the less able you are to do it. And, you certainly can’t explain it to anyone else. By corollary, the more we try to attain happiness by focusing on it, the more elusive it becomes. Like a faint image seen in the sensitive periphery of one’s vision, it disappears when the full power of the eye is turned upon it.

Sometimes, perhaps, we confuse happiness with a high and energetic emotional state. As I get older, I sometimes perceive myself to be happier when those occasions arise whereupon I seem to have an excitement and energy that is reminiscent of youth. It’s not a very mature definition of happiness, but it does illustrate the tend-

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<sup>2</sup> “Just Noticeable Difference”—a concept from psychophysical measurement denoting the minimum change in a stimulus (e.g. brightness of a lamp) that can be detected psychologically.

ency to equate positive moods and emotions with happiness, though we would like happiness to be a more enduring quality of life and not subject to the transience of emotion.

I find much hope for the future of psychology (and for the future of longevity, for that matter) in work like that of Mihaly Csikszentmihalyi. He is quite keen on happiness evolving from the individual's full and deep involvement in life. The trick, of course, is how to do it. Csikszentmihalyi's solution is autotelic experience or "flow", described as "a particular kind of experience that is so engrossing and enjoyable that it becomes autotelic, that is, worth doing for its own sake even though it may have no consequence outside itself. Creative activities, music, sports, games, and religious rituals are typical sources for this kind of experience. Autotelic persons are those who have such flow experiences relatively often, regardless of what they are doing" (Ref. [17, p. 824]). This experience he differentiates from the cultural axiom of "going with the flow" that involves "abandoning oneself to a situation that feels good, natural, and spontaneous".

To my mind, there are two key elements here. The first is the notion of a deep, enjoyable and engrossing involvement that captures an individual's full mental attentions such that one loses the sense of doing anything at all. The second, and perhaps the more difficult to master, is that the activity and the experience "may have no consequence outside itself". It is on this second element that we need to, perhaps, spend more time reflecting and researching. The idea of an activity without external objective, pursued often enough to provide the experience that Csikszentmihalyi proposes is a contradiction to our strongly utilitarian view of life, by which human activity should (for the most part) be purposive not only in terms of individualized objectives, but by social objectives as well. In short, we have difficulty appearing as if we are doing nothing of value, where value is defined at least in part in terms of social utility.

Here we see Eastern thought beginning to insinuate itself again into mainstream psychological theory. Psychology has long had links to elements of Eastern philosophy and religion, perhaps reaching a peak in the humanistic movement of the 1960's and 70's. It has been 30 years since Roland Fischer published his cartographic work on states of consciousness in the prestigious journal *Science* [21], bringing mainstream attention and scientific legitimacy to the linkage between Eastern thought and Western medical views about the nature of human experience. Happiness is, in part, a state of mind and consciousness that comes about through practice and discipline, very much like the states of consciousness enjoyed in meditation which require training to attain.

When we look toward the potential richness that longevity may bring and ask what the psychological sciences can potentially contribute toward a fuller appreciation of that part of life, it is perhaps in the area of consciousness development that we see its strongest potential. The challenge of longevity is not so much that life is longer, but that the length that is added is more at its end than at its middle. We can expect more years where we are less inclined to identify ourselves with our work or our profession, where our lives may be spent alone or with fewer numbers of people, where our physical abilities don't permit us to do as much, where our money has



to last longer, and where our days are more directed by our own inclinations and less by the pace of others. We have the opportunity to explore and extend our consciousness into areas that the demands of daily living in earlier life may have made difficult or impossible.

David Reynolds in his book *The Quiet Therapies* documents his exploration of Japanese modes of psychotherapy, drawing from them a worldview about the value of quietude and consciousness development that makes few demands on material wealth, and that facilitates a “reorganization of one’s recollections” (Ref. [22, p. 130]) to achieve an inner peace and resolution. For the future, we may want to look much more closely at cultures that have placed greater value upon the development of richness within the realm of consciousness and spirit than upon richness in the material world. As western technological societies face growing environmental problems and difficulties, and reach for new modes of living that emphasize sustainability, there may be value in placing greater emphasis in the social and behavioral sciences on research that seeks to extend human capabilities for enjoying life to its fullest, but in a context of material minimalism.

#### **4. Technology’s challenge to the meaning of longevity**

One can hardly grow up in the baby boomer generation without hearing stories from family and other adults about what life was like when technology was less sophisticated—before electricity, before radio and television, even before widespread use of automobiles. Such recollections on the part of adults formed a backdrop of living history to my developing life. Oddly, however, these same adults often found the life that I was entering both unfamiliar and mystifying, with new technologies they did not understand and new social values that clashed with those they had been acculturated to accept without question.

The pace of life today is much quicker and more demanding than ever before. New technologies sometimes impose additional demands by requiring us to participate in them even if our background, experience, and abilities don’t readily allows us to do so. For example, people of all ages in the United States are being gently nudged to participate in the Internet revolution. Proposals have been put forth that every citizen should have an e-mail address. The “best” prices are touted to be available on the Internet. The smart and savvy consumer is plugged in; the rest are not in sync with the market. Even the very financial portfolios that people are anticipating relying on for retirement may be able to be managed with greater efficiency and lower cost using new communication technologies. It is very likely that in the fairly near future, electronic banking will be the norm and “in person” services will come at a cost premium, making them less affordable by those who are in the lower (or fixed) income brackets, and who also may be the ones who are the least technologically sophisticated.

It is without a doubt that technology has increased our lifespans. New medical technologies, better health care, and even advances in risk communication that promote healthier and safer lifestyles (see Bostrom, this volume) contribute to our

increased temporal longevity. However, at the same time we have to question what the meaning is of the lifespans that have been lengthened. While we have more of life in the temporal sense of living longer, it may also be that the psychological meaning of life has not undergone an equivalent “lengthening”. For example, mental infirmities such as Alzheimer’s disease were virtually unknown but a generation or two ago—people simply didn’t live long enough to experience it. In some ways, physical longevity has caught up with psychological longevity and surpassed it.

But the problem occurs on a more conventional level of life as well. As we begin to experience lives measured by 125–150 years or more, society will become populated by an increasing number of generations living simultaneously. If modern history is any barometer of things to come, each of these generations will be characterized by their own cultural motif, in part a reflection of changing mores and in part a result of new technologies that in themselves challenge and shape social values. Even today we see information technologies challenging standards of privacy (and some might say decency) that would have been seen as unassailable moral canons less than a half century ago. Current concerns about environmental sustainability are in part the result of achievements in agricultural technology well over a century ago that altered agrarian values about stewardship; values that are still intact in some subcultures such as Native Americans. We can only imagine the rich array of social perspectives and viewpoints that would provide the context for an individual living the last of a life of 150 years. The question is: are we prepared psychologically to live socially competent and integrated lives in a context of such generational diversity? Or are we at risk of retreating into lives that are even more defined by the generational context with which we are most familiar? Will society itself become more of a stranger to older people than it is already?

The task ahead for psychology is one of defining the meaning of psychological longevity (as apart from physical longevity) in positivistic terms, and that capitalizes on the potential of humans to live rich and fulfilling lives in the absence of material values. Part of that endeavor will involve balancing the traditional medical model of human functioning that often guides psychological research and that tends to focus on problem identification/diagnosis and treatment, with models that focus on fundamental life skills that provide individuals with competence, optimism, hope, and a sense of future that persists throughout their whole life span.

## 5. Epilogue

“The waters of a flowing stream are ever present but never the same; the bubbles in a quiet pool disappear and form but never endure for long. So it is with men and their dwellings in the world.” Kamo no Chōmei “An Account of My Hermitage”[23]

I hope to gain continual and deepening satisfaction from life as I pass along its

various stages; not from participation in life as a material enterprise, but from life itself. However, in our modern society, it is increasingly difficult to separate life from the context of economic goods and values that surrounds us. If the first of life is meant to be a time of accumulation, such that the last of life is the time for the enjoyments that accompany the expenditure of that accumulation, then society today is well on its way to affirming Browning's proclamation. However, if we adopt a more Eastern take on Browning, then perhaps we can see that the first of life is a time for experience, and the last of life is a time for realization of the transitory nature of the materialisms that humans create. According to Eastern standards, by the last of life we should be shedding our attachments to a personal identity that draws its definition from the things we own. Contrary to contemporary Western thinking, the older we get, the less we should have, because we simply care less about "having". Psychology's future lies in part in helping us understand how to conquer desire, and how to be more comfortable and resolved in the last of life for which the first was made.

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