

Creative Performance in Older Adults

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Abstract

The prevailing stereotype of the relationship between intellectual productivity and age is that there is a rapid decrease after the age of about 60. However, this view is not supported by findings from case studies or laboratory research. When attention is focused on creativity, much the same is true: there are indeed differences related to age, but creative performances are seen (under appropriate circumstances) in people of all ages. Age differences in creative performance are not due to a general deterioration, but to a combination of cognitive changes, effects of external factors such as social norms, and internal factors such as motivation and personality. Such findings suggest ways of maintaining creativity, even after retirement!

1 Introduction

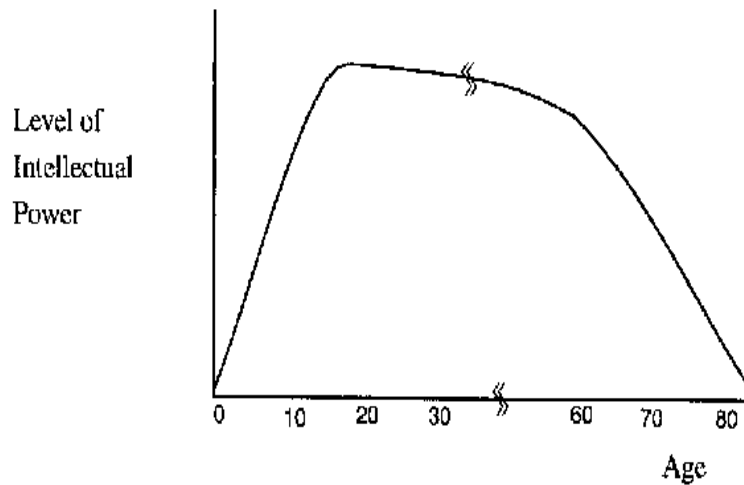
The traditional view on the relationship between age and intellectual productivity can be summarized in a simple manner: A rapid increase between birth and adolescence or early adulthood is said to be followed by a plateau lasting until the age of perhaps 50 or 60, at which point a phase of deterioration is thought to set in and accelerate rapidly once old age makes itself felt, ending ultimately with death. The shape of the curve is affected by illness or injury, but it can be summarized in general terms in the form shown in Figure 1 (Cropley 1977, p. 55).

2 Weaknesses of the Model

2.1 Technical Problems

There are a number of methodological objections to this model. For instance, the data on which it is based were mainly derived from cross sectional studies,

Figure 1: Stereotype of Intellectual Growth and Decline with Age.



in which separate groups of people were tested at the same time (all the people in a given group being of similar age), on the assumption that - to take one example - those who are 20 today will in 30 years time be like people who are 50 today. Methodological analyses (e.g., Baltes, Reese & Lipsitt 1980) have shown that longitudinal studies, in which the same people are tested several times at intervals during their lives, are likely to produce different results. For instance, as Cropley (1977) showed, even in a situation in which in reality there is a constant increase throughout life, cross sectional studies could easily yield a curve similar to that in Figure 1, purely as a result of differences between generations and not as a result of changes within individuals over time. By the early 1980s there was conflicting evidence from the two sorts of studies as well as better understanding of the methodological issues, which led to pronouncements on the "myth" of decline in intellectual functioning during adulthood, and counter arguments that the myth was itself a myth (see for instance Horn 1982).

2.2 Different Aspects of Intellectual Functioning

Descriptions of the relationship between age and intellectual functioning such as the one shown in Figure 1 are merely summaries. They do not take account of differences in the shape of the curve for different aspects of intellectual functioning; the size of the vocabulary, for instance, increases steadily with age (in the absence of injury, disease, or biological degeneration). They focus on only a narrow range of aspects of intellect such as speed of problem

solving, rapid and accurate access to the contents of the memory, familiarity with the most up to date technology, and the like (aspects of ability that are closely related to conventional school like activities). They ignore, among other things, fantasy. Possibly more important, they take little account of the "wisdom" arising from increased experience of life (see Baltes & Smith 1990 and Birren & Fisher 1990 for more detailed discussions). This wisdom includes good judgment in difficult situations, understanding of the way in which the events of life go together to form a consistent context, the ability to place events into perspective, a grasp of the fact that life is full of uncertainty and imponderability and that all planning must take this into account, and similar knowledge and skills.

2.3 Differences Between People

Figure 1 also fails to take differences between individual people into account. Some people show low levels of intellectual activity from an early age, some continue into advanced age, or continue to be very active until death. In any case, postmortem studies show that people maintain their level of intellectual activity until a point where a decline leading into death occurs, regardless of the chronological age (it should be remembered that these remarks do not apply where the effects of injury, disease or biological degeneration are pronounced). In other words, it is not age itself which is correlated with reduction in intellectual activity but rather entry into the final phase of life, which sets in relatively shortly before death. The chronological age at which this occurs may differ very substantially from person to person. One determinant of the age at which entry into the pre-death phase occurs (once again, leaving aside injury, illness or premature degeneration) may be the extent to which people remain intellectually active. According to the principle, "Use it or lose it," those who start resting on their laurels early may be the people who slip into the downhill part of the curve in Figure 1 at the earliest chronological age. An appropriate German saying can be translated as, "Those who rest rust!"

3 Special Aspects of Adult Intellectual Functioning

Despite what has just been said, Knapper and Cropley (1991) concluded that there are genuine changes in intellectual functioning with increasing age. However, such differences do not reflect simply a general deterioration after

adolescence and young adulthood, but are the result of a combination of factors: changes in cognitive abilities (memory, thinking and learning strategies, storage and recall of information), speed of functioning, or preferred working conditions. Particularly important is the fact that differences in intellectual performance at different ages may be due more to differences in interests, motivation, self-image and the like than in ability. With increasing age adults possess more clearly developed personal goals, better articulated ideas about what constitutes worthwhile subject matter, and a stronger desire to apply the results of their intellectual efforts. In addition, they are subjected to the effects of social factors such as fear of looking foolish. They also tend to take on different roles in their careers, older adults, for instance, being expected to become guardians of advances already made (managers) and supervisors or mentors of the upcoming generation, rather than risk takers and trail blazers. Older colleagues are expected to leave the work at the cutting edge to the younger generation. Finally, they are the subject of social stereotypes, including the view that people over, let us say, 50 are incompetent. It is important to notice here that the differences which do exist between children and adults and between older and younger adults are (a) largely noncognitive in nature (involving motivation, self-image, social pressure, etc.) and (b) qualitative (involving different kinds of content, differences in preferred ways of working, and the like).

4 Broader Understanding of Ability - Creativity

In recent years (see Cropley 1992a for a summary), the traditional concept of intelligence has been extended by arguing that it is not only the reproductive elements of thinking and problem solving (recognizing, remembering, reapplying and the like - often under time pressure), that define intellectual productivity, but that branching out, finding novel solutions, etc. (i.e., creativity) are also important. A combination of conventional thinking based on factual knowledge, recall of this knowledge, logical thinking and similar properties with the production of effective and relevant novelty yields "true" giftedness (Cropley 1994; Facaoaru 1985).

4.1 Creativity and Age

The question that now arises is that of the relationship between creativity and age. Concentrating on "ordinary" people who have not become famous for

creativity, various authors (see Cropley in press for a summary) have concluded that there is a curvilinear relationship between age and "creativity", as measured by psychological tests. Scores increase until about age 6, followed by a trough between about 6 and 16, and an increase again until about 30. After about 30 there is thought to be a steady decline. The early, "classic" study of Lehman (1953) reported that peak performances of people who had actually become famous for their creative achievements occurred most frequently between 30 and 40. This view is still widely supported (see Simonton (1988) for a detailed analysis based on case studies of famous people). Lehman's findings indicated that the age at which peak performances occur varies from discipline to discipline, mathematicians tending to become famous particularly early. Nonetheless, there is agreement in the research literature (e.g., Cole 1979; Dennis 1966; Horner, Rushton & Vernon 1986) that, allowing for differences in definitions and methodology, somewhere around 40 is the most productive age. Despite this, it should be borne in mind that many famous creative individuals continued to produce until well into later life: Darwin, Freud and Einstein became famous in their twenties and remained active into their seventies - those who start youngest seem to continue longest.

4.2 Methodological Problems

A major methodological weakness of case studies of age and creativity is that many creative people are included who died young: Naturally, such people made their creative achievements at an early age. The picture becomes somewhat different when people who lived into their seventies and longer are studied separately. Lindauer (1993), for instance, studied famous artists, and showed that the average age of peak performance was 35 for those who died young, but 50 for those who lived longer. In general, longer lived creative artists maintained a high peak of creativity over a period of three decades, usually in their 30s, 40s and 50s. Peak creativity was unusual in the 20s (although not nonexistent), and fell off in the 60s and later, although more common after 50 than before 30. A high level of creativity even in old age is, in fact, quite common. The psychological findings of Cornelius and Crespi (1987) and Perlmutter (1988) that imagination persists until late in life support the view that psychological traits connected with creativity persist into old age.

Looking at individual people, Lindauer (1993) also reported substantial individual differences in patterns connecting creativity with age. Even among

the members of his sample of long lived artists, two reached their peak in their 20s, six, however, in their 60s. There were also noticeable sex differences. Famous women artists produced more creative work in their 20s, men more in their 60s or even later, although both sexes experienced their peak years between 30 and 50. This suggests a possible social effect - in this case sex role expectations - on the development of creativity. Root-Bernstein, Bernstein and Garnier (1993) studied the productivity of 40 male scientists who had all made enduring "high impact" contributions in physics, chemistry, biochemistry and biology (including several Nobel Prize winners and a number of men who had been nominated for the Nobel Prize, some of them on more than one occasion, without actually winning it). The contributions of these men were studied over a period of 20 years. Many of them went on producing into their 50s and 60s. Those who made a single achievement early and then ceased to be creative (although most of them continued to work productively, if in a more or less repetitive way) tended to move into management, whereas those who continued to be creative hated administrative work. These authors concluded that a fall off in creativity after early achievements is common, but by no means necessary.

4.3 Different Kinds of Creativity

One possible explanation of conflicting findings on creativity and age is that there may be different kinds of creativity, the kind rather than the level of creativity being age linked. Mumford and Gustafson (1988) made a distinction which is very useful in this regard. They differentiated between "major" and "minor" creativity. Significant breakthroughs (major creativity) may well tend to occur between about 30 and 40, broadening and consolidating (minor creativity) after that. Abra (1994) made a similar distinction between "innovators" and "perfectors". He also expressed this in a somewhat negative way, referring to "visionaries" and "plodders". These ideas suggest that there may be age related changes in the kind of creativity, highly original ideas tending to appear in youth (even if they are not fully thought out), perfecting of the breakthroughs occurring later. The latter kind of creativity may require a long period of apprenticeship: Elshout (1990), for instance, showed that outstanding performance often requires about 20 years of preparation. Case studies of creative achievers such as Nobel Prize winners or persons rated as exceptionally creative by their peers (e.g., Simonton 1988; Weisberg 1986) have been extremely fruitful in this regard. Despite exceptions such as Mozart, achieving recognition is often a very long process: famous pianists

and successful scientists, to take two examples, frequently require 15 or more years of intensive effort before their work is recognized as creative. Howe and Sloboda (1991) showed that children who displayed exceptional musical talent early in their lives did not necessarily go on to become successful musicians. If acquisition of the high technical skills necessary in many areas for polished creative products takes 15 or 20 years, it is not hard to see why creativity in the form of consolidating, broadening and perfecting would be rare before the age of 40 or so. On the other hand, the inspired shot in the dark or the sudden breakthrough, even if in an unpolished form, would be perfectly possible at younger ages, or might even be encouraged by impulsiveness, rebelliousness or absence of fear of losing face, characteristics commonly associated with youth.

5 Factors Affecting Creativity in Older Adults

From a psychological point of view, differences between older adults and children in creative performance may be regarded as stemming from internal factors such as intelligence, motivation or personality, or from external factors (characteristics of the external world). Naturally, these two areas may interact with each other - for instance, characteristics of the environment may affect the acquisition of skills or the development of personality. Both internal and external factors are subject to developmental processes; new skills are acquired with increasing age and motivational changes, while an individual's position in the community or the expectations other people have of the individual change with that person's age.

5.1 Cognitive Factors

Differences of the kind just mentioned between older and younger people may result from patterns of cognitive development (Piaget 1973). In children, there is a progression from the preoperational stage (thinking focuses on concrete attributes of objects and events) to the formal operational (thinking takes account of abstract "meaning"). Urban (1991) identified six developmental stages of creativity (admittedly in children) which were based on cognitive development in the sense just outlined. One of the most important cognitive factors in adult creativity identified by Walberg and Stariha (1992) was use of existing knowledge as the basis of novel ideas. This was followed by

alertness to novelty and knowledge gaps (see Cropley's (1992b) discussion of "openness to the spark of inspiration"). Age differences in level or kind of creativity may reflect the known tendency of younger people to "accommodate" cognitively to new experiences (i.e., to alter existing ideas on the basis of new information) in contrast with the tendency of older people to "assimilate" (i.e., to integrate new information into existing knowledge).

5.2 Motivation

Another important area where age probably plays a role is that of motivation. Various authors (see Walberg & Stariha 1992 for a summary) have concluded that the major motivational factors observed in creative adults are perseverance, discipline and commitment to a field or content area. Committed work in a field over a lengthy period of time can hardly be expected from children, if for no other reason than that the brevity of their lives prior to the time when they are studied in research projects makes long term commitment impossible. Also important are the influence of the norms of formal education (emphasis on logic and accuracy). In an international context, Shoumakova and Stetsenko (1993) in Russia and Heller (1994) in Germany reported that they had detected a reduction in creativity with increasing schooling. Also important are social norms (adults are expected to "be their age" and come to grips with the realities of life at the expense of fantasy or play), demands of family, job or career and finally, physiological factors such as changes in memory and thinking speed. Ruth and Birren (1985) emphasized this latter group of factors in an unusual study of creativity at various age levels, including old age.

5.3 Social Factors

Studies of creativity in eminent creative adults (see Walberg & Stariha 1992 for a brief but informative summary) have shown that expectations - in this case the expectations of parents when the creative adults were still children - seem to play a role in the emergence of creativity. In older adults there is a clear societal expectation that they will become passive and inactive. The effects of this expectation on creative productivity in later adulthood were demonstrated by Lindauer's (1993) finding that artists who kept on working, instead of retiring, continued to do creative work until into their old age. Making a similar point with a different group of creative workers, Dudek and Hall (1991) showed that architects who resisted retiring were creatively productive for many years more than those who retired early. Such findings

suggest that the social convention of ceasing to work at about age 60, not disappearance of the psychological potential for creativity, may be a major causal factor in reduced creativity at older ages.

Another social factor connecting creativity with age was discussed by Abra (1994). He showed that achieving spectacular breakthroughs may require cooperation with others. This might take the form of brainstorming or similar kinds of interaction. Older people, especially those who have already achieved creative products, may find it more difficult to work with partners, accustomed as they are to being the star of the show. In their study of creative scientists, Root-Bernstein, Bernstein and Garnier (1993) found that a major difference between the men who continued to be creative over a long period of time and those who made creative achievements early in life and then ceased to be creatively productive (although they were often active for many more years, producing however only "plodding" work after the breakthrough) was that the lifespan creators frequently worked on several problems simultaneously, or even switched areas of focus several times. They were willing to go back to being novices again. Root-Bernstein (1989) spoke of the "novice effect" in this regard. Working in the same area over a long period of time leads to high levels of familiarity with the field, but blunts the acuteness of the vision or inhibits openness to the spark of inspiration (Cropley 1992b). The novice, by contrast, is not inhibited by long years of work on narrow details. Returning to novice status requires doing without the self-confidence that arises from knowledge of one's own sovereignty in an area and without the respect from others which is part of being an acknowledged expert.

6 The Value of Creativity for Older Adults

The research summarized to date indicates that creative productivity is perfectly possible in older adults. However, "is possible" is not the same as "is necessary". Why should older people continue to seek to be creatively productive, rather than, for instance, accepting the social stereotype of passivity or even retiring as early as possible?

6.1 Everyday Creativity

Arguments why creativity should be fostered usually emphasize that a society needs creative performances from scientists, engineers, managers, artists and

scholars if it is to flourish, creative people being seen, essentially, as human capital (see for instance Walberg & Stariha 1992). However, a number of authors have introduced the idea of creativity as a characteristic of "people who will never produce anything original and useful" (Nicholls 1972), or "everyday creativity" (Merzel 1988). Interest in this chapter is in creativity as something of which all people are capable. However, this requires a focus on creativity not as the bringing forth of products hailed as creative (objects, works of art, ideas, techniques and methods), but as a psychological process involving cognition (thinking, reasoning, problem solving), motivation (willingness to take risks, persistence, desire for novelty) and personality (resistance to conformity pressure, self-confidence, flexibility).

6.2 Creativity and Mental Health

Research indicates that creativity is connected with psychological properties such as flexibility, openness, autonomy, humour, willingness to try things, realistic self-assessment, and similar characteristics. These properties have been established in studies of highly creative people (see Cropley 1992a for a summary). They are usually thought of as prerequisites for the emergence of creativity. However, research on normal personality development also emphasizes similar properties as core elements of the healthy personality. Adopting a psychoanalytic position, Anthony (1987) argued that creativity is related to ego autonomy, ego autonomy to mental health, with the consequence that creativity and mental health are related. In humanistic psychology (e.g., Maslow 1954; Rogers 1961) healthy personality development requires openness, flexibility and tolerance, characteristics of the creative personality. Krystal (1988) showed that uncreative people had difficulty in "self-caring" and lacked "self-coherence". Fostering creativity in such people would promote self-realization. Emphasizing cognitive processes, Hudson (1963) made the point that noncreative people tend to be narrow and rigid in dealing with information from the external environment, whereas creative individuals show openness and flexibility in dealing with such information. Narrowness and rigidity help achieve a sense of certainty and security, but at the expense of healthy personality development. According to Burkhardt (1985), modern life is marked by a "mass psychosis" which has at its core an obsession with sameness and uniformity. Creativity is, of course, concerned with novelty and difference.

Thus, it can be argued that creativity is connected with psychological characteristics (such as openness, autonomy and flexibility) which are

important in maintaining mental health. Although it is not clear whether there is a cause and effect relationship between creativity and mental health, the two seem to be connected, at least at the level of everyday creativity. The position may be different with people who become famous for creative achievements. Lombroso (1891), for instance, argued that genius and madness are closely allied, and this view has been repeated in later research (see Cropley 1990 for a review). Jamison (1989) showed that manic states were prominent in many famous artists and writers, including Byron, Shelley, Coleridge and Poe. Nonetheless, Richards and Kinney (1990) concluded that psychosis does not seem to be conducive to creativity, while May (1976) concluded that it is inimical. There are, then, grounds for believing that creativity, even in the humble sense of everyday creativity, encourages healthy personality development and mental age. This conclusion provides a strong argument for the importance of maintaining creativity even at advanced age.

7 Conclusions: Remaining Creative After Retirement

The research summarized here suggests that creative productivity is perfectly possible in older adults. However, certain psychological characteristics seem to be necessary - or at the very least favourable - for creativity in later life. These include maintenance of sensitivity to problems and openness to the novel, continuing ability to accommodate to new knowledge (see earlier discussions of assimilation versus accommodation), willingness to work hard, commitment to an area or an idea, willingness to revert to nonexpert status or to thinking untrammelled by the strict logic or knowledge of what is and is not possible acquired over a lifetime, and ability to work with others, conceivably in a relationship in which being older does not imply lead to fear of losing face or a unwillingness to risk failure.

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