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Abstract

In this study, we used a lifespan model to study the subjective perception of creative personality (CP) in emerging, young, middle-aged, and older Hong Kong Chinese adults. It also asked participants to estimate the approximate age by which people develop and lose CP across adulthood. We expected an interesting interplay between internalized age stereotypes and age-related differentiation in beliefs about personality development. Older adults perceived increases in both gains and losses in CP in old age. But they still maintained a similar level of self-perceived CP traits when compared with younger participants. Emerging, young and middle-aged adults were less optimistic about their creativity development into old age. Young adults, in contrast to older adults, believed that gains in CP began and ceased at an earlier age. Positive perceptions of CP in one's aging process may have implications for aging successfully.

Keywords: creativity development, lifespan development, Chinese, personality, older adults

Gains and Losses in Creative Personality Traits as Perceived by Adults Across the Lifespan

Creativity is frequently measured by (a) divergent thinking skills, (b) creative daily activities, and (c) personality traits (for a review, see Hennessey & Amabile, 2010). Research has shown, predictably, that divergent thinking shows an inverted-U shape across the lifespan, that is, it gradually increases from 17 and peaks at the age of 40, then declines thereafter (Kogan, 1973; McCrae, Arenberg, & Costa, 1987; Reese, Lee, Cohen, & Puckett, 2001). Whereas the age-related trajectory of divergent thinking is well known, the corresponding trends of creative personality (CP) and activity participation have not been subject to research investigation. Despite declines in divergent thinking, CP and participation may be relatively enduring in old age. This study focuses on self-assessed CP and perceptions of CP changes across the adult lifespan. To our best knowledge, this was the first study to investigate beliefs about CP across the adult lifespan.

CP is defined as traits characteristic of creative individuals (Hennessey & Amabile, 2010), such as originality, openness to experience, and affective involvement in work (Helson & Srivastava, 2002). It is important to study the subjective perception of CP and its age-related changes because action theory (Brandstadter, 1999) suggests that participation in creative activities would be guided by one's beliefs about changes in CP across the lifespan, regardless of objective changes in creative abilities. Creative activity participation, in turn, may have many benefits, including enhanced intellectual and social engagement, better health indicators, lower levels of depression, and improved self-esteem (Cohen et al., 2006). Moreover, it is conceivable that a creative personality would have a significant bearing on older adults' continuous participation in productive employment given the growth of the creative economy in an aging world.

However, age stereotypes may hinder positive development of CP in later life. It is a common belief that creativity decreases with age (Knight & Parr, 1999; Reed, 2005), which may

create a self-fulfilling prophecy whereby people with this internalized belief stop trying to develop it as they grow older. Likewise, employers with such stereotypes may not seek talents among older workers, with the unfortunate consequence that they are marginalized in the global creative economy.

On the other hand, research from the perspective of developmental gains and losses, though not investigating creative traits per se, suggests a slightly different picture. Heckhausen, Dixon, and Baltes (1989) asked adults to rate whether they thought 358 attributes, covering a wide range of personality, social, and intellectual characteristics, were desirable and would increase as individuals developed. Developmental gains and losses were operationalized as gains in desirable personality attributes (Gains) and *gains* in undesirable traits (Losses) respectively.

Older adults reported more developmentally increased attributes (both desirable and undesirable traits) than young and midlife adults. The authors suggested that with age, older adults had incorporated their experiences in formulating more multifaceted views of development. In another study, Gruhn, Gilet, Studer, and Labouvie-Vief (2011) employed a similar methodology to examine normative beliefs about positive and negative personality traits. Results indicated that older adults believed that positive characteristics were lost at a later time in life than did younger adults. These studies suggest that older adults may be more optimistic than younger adults about the closing ages of positive personality characteristics. It would be interesting to see whether the same pattern is observed for CP traits.

We adopted Heckhausen and colleagues' paradigm to study normative perceptions of age-related changes in CP (Heckhausen, Dixon, & Baltes, 1989; Heckhausen, & Krueger, 1993) and applied it to Gough's (1979) Creative Personality Scale (CPS). We expected an interesting interplay between internalized age stereotypes and age-related differentiation on beliefs about personality development. Because older adults tend to view development as being more flexible

whereas younger adults tend to be more affected by stereotypic views of creativity decline with age, we predicted that older adults would report higher scores in both Gains and Losses when compared with their younger counterparts. We also predicted that older adults would report a later onset and closing age of Gains and Losses.

Method

Participants

The present data were part of a larger project examining creativity and aging in residents of Hong Kong. Participants included 594 individuals from 4 age groups: 149 emerging adults (aged 18-25, 43.3% female), 148 young adults (aged 26-40, 66.7% female), 148 middle-aged working adults (aged 41-60, 57.3% female), 149 older adults (aged ≥ 61 , 70.7% female) living in Hong Kong. The emerging adult group was recruited from universities. The young and middle-aged groups were recruited through advertising and performing arts industries as well as through the college participants' family networks. The older aged group was recruited from day centers for seniors. Participants were native speakers of Cantonese and were Chinese by ethnicity. They received HK\$50 (~US\$6) as compensation. There were more female participants in the older group. Average self-rated subjective health among older adults was 3.86 ($SD=0.89$) on a 5-point scale.

Educational attainment (1=some primary or no education, 2=completing primary, 3=secondary, 4=sub-degree, 5=degree, 6=master's, and 7=doctorate) was significantly different across age groups, $F(3, 590)=321.01, p=.000, \eta_p^2=.620$). The educational levels of emerging adults ($M=4.91, SD=0.31$) and young adults ($M=4.54, SD=1.10$) were significantly higher than the middle-aged adults ($M=2.96, SD=0.90$), and the older adults ($M=2.34, SD=0.84$). Compared with the general population, all four groups were more highly educated than their age cohorts.

Materials and Procedure

A Chinese translation of Gough's (1979) CPS was used. The total list included 30 adjectives describing a wide range of personality traits. The adjectives were translated from English into Chinese and then back translated into English in a study conducted by Cheng (2002). Eighteen personality traits were found to be positively correlated to creativity, and 12 personality traits were found to be negatively correlated with creativity. Positive items included capable, clever, confident, egotistical, humorous, individualistic, informal, insightful, intelligent, wide interests, inventive, original, reflective, resourceful, self-confident, sexy, snobbish, and unconventional. Negative items were affected (lacking in natural or spontaneous quality), cautious, commonplace, conservative, conventional, dissatisfied, honest, well-mannered, narrow interests, sincere, submissive, and suspicious. The order of the traits was randomized. Participants were asked to rate each adjective on a 9-point self-assessment scale from 1 (not like me at all) to 9 (very much like me), as increasing with age from 1 (never increase) to 9 (very definitely increase). The onset age and the closing age were rated from ages 20 through 90 across the ages of adulthood.

Consistent with the operational definition of Gains and Losses (Heckhausen et al., 1989; Gruhn et al., 2011), CP Gains were calculated by averaging the mean of the 18 positive items which were rated to increase with age from 20 to 90 years old, except inventive, snobbish, and egotistical because of low mean scores ($M < 4.99$) on the age-related increase rating. CP Losses were calculated by averaging the mean of 12 negative items that were rated to increase with age except affected, narrow interests, and submissive because of the low age-related increase scores ($M < 4.99$). In accordance with Gough's (1979) suggestion, we calculated a composite score of CP by summing all 15 positively-correlated terms and subtracting from it the sum of the 9 negatively-correlated terms. Higher values indicate higher self-assessed CP.

Consistent with Hui, Ng, and Mok (2005), two items were included to indicate participation

in creative and cultural activities (number of movie visits and performing arts watched in a year). These two scores were added together, and ranged from 0 to 5.42 ($M=2.02$, $SD=1.45$; skewness=.598, $SE= .10$), with a higher score indicating more frequent participation.

Procedure

Written consent was obtained from the participants. The questionnaire was administered to participants in a single session. Emerging, young and middle-aged adult participants completed the questionnaire independently. Older participants were interviewed individually by experienced researchers.

Results

Self-Assessed Creative Personality

We included education, gender, and creative participation as covariates. First, as mentioned above, there was age difference in education, and education has been shown to be moderately correlated with CP, with more higher educated people reporting more CP traits (Flood, 2006). In order for age differences in CP and related variables to be accurately assessed, we needed to control for education. Second, because women in the older age cohorts are less educated than men ($F(1, 147)=14.72$, $p <.001$, $\eta_p^2=.091$) in Hong Kong, the effect of education was confounded with gender, and hence we included gender as a covariate too. A moderately significant correlation was found between education level and CP in the midlife group, $r(148) = .23$, $p < .01$. Third, creative participation was correlated with age, $r(594) = .10$, $p < .05$. In addition, age had a curvilinear relationship with creative participation suggesting that there was a gradual decrease of participation in creative activities from emerging adulthood to midlife but an increase thereafter, so that older adults had more creative participation than the other three age groups.

The means and standard deviations for each trait are presented in Table 1. Significant age differences were found in CP, $F(3, 587)=6.61$, $p <.001$, $\eta_p^2=.033$, after controlling for

educational attainment, gender and participation in creative activities. Figure 1 indicates the adjusted means of CP across the four age groups. Table 2 shows the means, standard deviations, and the results of post hoc pairwise comparisons with Bonferroni correction. Older adults scored significantly higher in CP than emerging and midlife adults.

Gains and Losses in Creative Personality

We performed an analysis of covariance (ANCOVA) to examine age differences in Gains and Losses after controlling for educational attainment, gender and creative participation. Significant age differences were found in Gains, $F(3, 587)=12.04, p <.001, \eta_p^2=.058$, and Losses, $F(3, 587)=5.03, p=.002, \eta_p^2=.025$. Bonferroni-corrected post hoc comparisons showed that older adults scored significantly higher in Gains than the other three age groups. They also scored significantly higher than midlife adults in Losses.

Age-related Changes of Gains and Losses in Creative Personality

We performed an ANCOVA to examine age differences in the expected onset ages of Gains and Losses. Significant differences were found in the onset age of Gains, $F(3, 587)=5.39, p=.002, \eta_p^2=.028$, as well as the onset age of Losses, $F(3, 587)=4.36, p=.005, \eta_p^2=.022$. Bonferroni-corrected post hoc comparisons showed that older adults reported a significantly higher onset age of Gains than emerging and young adults, as well as a higher onset age for Losses than young adults. Middle-aged adults also scored significantly higher in onset age of Losses than emerging and young adults. Thus, both the middle-aged and older groups believed that CP would diminish at a later age; the latter also believed that CP would start to grow at a later age.

There were significant age differences in closing age of Gains, $F(3, 587)=11.82, p <.001, \eta_p^2=.057$, and closing age of Losses, $F(3, 587)=4.28, p=.005, \eta_p^2=.021$. Bonferroni-corrected post hoc comparisons showed that older adults reported a significantly higher closing age of Gains than emerging, young, and midlife adults. Older adults also reported a significantly higher

closing age of Losses than emerging and middle-aged adults. Thus, older persons believed that CP could be sustained to a later age.

Discussion

The study was designed to examine people's beliefs about developmental changes in CP traits. We note several limitations of the study. First, our sample was limited and biased towards individuals with higher educational attainment and healthy older adults in the community. Hong Kong's creative industries are overrepresented with young (50%) and highly educated individuals (post-secondary school: 64%; Hui, 2003). Researchers should replicate these findings with a sample that is more varied in educational attainment. Second, this study is cross-sectional, and therefore, we cannot demonstrate whether the findings represent developmental trends. Longitudinal or cross-sequential designs will be needed in the future to allow more definitive inference about developmental trends.

Despite these limitations, some important observations can be drawn from the data. Contrary to the results found in most of the cross-sectional studies on objective assessment of creative thinking (McCrae et al., 1987; Jaquish & Ripple, 1984), we did not find self-assessed CP to continuously decline with age. Instead, we found significant age differences in favor of older adults in self-assessment of CP as well as in the perception of Gains and Losses in CP. Subjective assessment of CP was higher in older adults than in emerging and midlife adults. Moreover, compared with older adults, those in the younger age groups tended to perceive onset and closing ages of Gains to occur earlier. Similar patterns were observed for onset and closing ages of Losses. Taken together, these findings may imply a negative perception of aging in CP development. Younger individuals believe that CP will be lost with age, which may reflect an unfavorable result of age stereotypes in the society.

While we cannot rule out that the more favorable ratings of the older group were due to

cohort effect, we have reasons to believe that there is a realistic likelihood for a renewed enthusiasm and optimism in creativity development in later life due to enhanced opportunities to participate in creative activities. In Helson and Srivastava's (2002) longitudinal study examining antecedents of creative achievement and wisdom, creative activities significantly predicted creative achievements in older age, suggesting that creative participation and creative personality should be somewhat related (see also Abra, 1989; Kamath, Lee, & Workman, 2008; Lindauer, 2003; Lorenzen-Huber, 1991). It is common knowledge that older adults, mostly freed from child care and occupational roles, may find time to rekindle former interests and pursue unfulfilled or new ones. In this study, older adults were found to have engaged in more creative activities than the other age groups. Active engagement in creative activities would likely promote a more optimistic perspective of creativity development in later adulthood as well as a more positive self-assessment of CP. Another explanation concerns the availability heuristic, that is, the presence of creative older individuals in their personal networks or in the media, such as Grandma Moses – Anna Mary Moses – who became a professional artist in her 70's. The availability of such individuals as models may change their perception of CP development in later life.

In fact, had the results been dominated by cohort effects, we might see older people reporting lower CP due to their disadvantaged educational background (Flood, 2006) as a result of wars and poverty in the early years (Cheng, Lum, Lam, & Fung, in press). Thus the age-related increase in CP shown in the present study is less likely due to cohort effect, and more likely attributable to older people's greater engagement in creative activities and other factors mentioned previously. On the contrary, younger participants may lack both experience and imagination to contemplate that a creative life can go on throughout the lifespan.

In conclusion, this study is the first to use a lifespan approach to investigate subjective

perceptions of developmental gains and losses in CP. Age-related differences were found in the self-assessments of CP. The findings support the contention that CP can be cultivated in later life. Creativity may be a type of psychological capital and character strength, and developing it may contribute to successful aging.

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Table 1

Means and Standard Deviations of Ratings for Each Adjective: Self-assessment, Developmental Increase, Onset Age and Closing Age

Adjectives	Self-Assessment		Increase with Age		Onset Age		Closing Age	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Mannerly ⁻	7.08	1.44	6.12	2.24	26.30	13.28	77.30	16.42
Honest ⁻	6.88	1.35	5.42	2.32	28.60	15.37	71.70	22.02
Sincere ⁻	6.79	1.49	5.44	2.30	29.20	15.54	72.10	20.55
Cautious ⁻	6.42	1.63	6.51	1.84	31.80	13.98	74.40	15.04
Confident ⁺	6.26	1.59	6.02	1.94	29.80	15.58	69.50	17.75
Reflective ⁺	6.27	1.63	5.99	2.01	31.40	14.08	72.70	16.64
Self-confident ⁺	6.17	1.66	5.88	2.00	28.40	13.33	69.10	17.20
Resourceful ⁺	6.12	1.61	6.04	1.99	29.90	13.93	67.80	17.23
Insightful ⁺	6.04	1.56	6.22	1.86	30.80	14.66	71.70	16.62
Informal ⁺	6.02	1.74	5.38	2.14	32.20	16.51	67.80	21.18
Intelligent ⁺	5.95	1.59	6.01	2.04	30.80	14.72	73.20	16.95
Capable ⁺	5.98	1.56	5.76	2.07	29.00	13.45	66.90	15.49
Common Place ⁻	5.85	1.90	5.46	2.08	37.20	17.22	73.10	19.73
Unconventional ⁺	5.78	1.94	5.04	2.29	31.50	15.06	66.50	22.19
Clever ⁺	5.73	1.58	5.34	2.13	27.40	13.78	69.10	17.82
Interest Wide ⁺	5.71	1.93	5.09	2.14	29.75	15.42	66.38	19.75
Conventional ⁻	5.71	1.89	5.62	2.26	35.20	15.43	74.60	18.12
Humorous ⁺	5.71	1.92	5.21	2.08	29.50	14.71	70.00	19.76
Original ⁺	5.64	1.70	5.78	2.00	31.80	14.24	70.10	17.46
Individualistic ⁺	5.63	1.84	5.26	2.17	30.00	15.17	66.20	20.74
Submissive ⁻	5.61	1.78	4.94	2.07	32.70	15.41	65.30	21.54
Sexy ⁺	5.37	1.78	5.35	2.09	29.30	13.92	64.00	18.92
Conservative ⁻	5.07	1.89	5.47	2.11	39.10	16.93	74.10	18.89
Inventive ⁺	4.99	2.10	4.38	2.17	28.40	14.93	60.40	22.03
Dissatisfied ⁻	4.68	1.88	5.24	2.27	31.20	16.25	68.20	20.12
Suspicious ⁻	4.43	2.02	5.14	2.19	34.00	14.61	67.30	20.82
Egotistical ⁺	4.30	2.02	4.46	2.18	30.70	15.62	61.90	22.31
Interest Narrow ⁻	4.26	2.10	4.38	2.31	38.80	19.58	67.00	22.71
Snobbish ⁺	4.06	2.09	4.21	2.18	29.80	14.80	58.20	22.43
Affected ⁻	3.08	1.88	3.69	2.19	28.40	13.95	54.40	23.41

⁺ indicates adjectives positively correlated with CP; ⁻ indicates adjectives negatively correlated with CP

Table 2

Means and Standard Deviations of Variables (N = 594)

Variables	<u>Age18-25 (1)</u> (n = 149)		<u>Age 26-40 (2)</u> (n = 148)		<u>Age 41-60 (3)</u> (n = 148)		<u>Age ≥61(4)</u> (n = 149)		F	η_p^2	Post-hoc Tests
	M	SD	M	SD	M	SD	M	SD			
CP	35.22 (33.12)	15.14 (17.68)	36.64 (35.75)	15.09 (16.18)	31.20 (33.07)	13.54 (15.77)	39.51 (40.65)	13.73 (18.79)	6.61***	.033	4>1,3
Gains in CP	5.78 (5.67)	1.06 (1.27)	5.88 (5.84)	1.00 (1.17)	5.53 (5.65)	1.02 (1.13)	6.36 (6.41)	1.05 (1.35)	12.04***	.058	4>1,2,3
Losses in CP	5.74 (5.80)	.76 (1.03)	5.80 (5.84)	.89 (.94)	5.75 (5.73)	.86 (.91)	6.22 (6.13)	.77 (1.09)	5.03**	.025	4>3
Onset Age of Gains in CP	26.74 (27.01)	9.99 (13.18)	27.53 (27.94)	9.89 (12.04)	31.74 (31.20)	11.82 (11.80)	34.41 (34.26)	10.88 (14.04)	5.53**	.028	4>1,2
Onset Age of Losses in CP	30.37 (30.37)	9.80 (12.45)	29.68 (29.97)	9.53 (11.44)	34.90 (34.71)	10.65 (11.19)	34.94 (34.84)	10.27 (13.31)	4.36**	.022	3>1,2; 4>2
Closing Age of Gains in CP	65.53 (65.35)	12.73 (14.28)	67.91 (68.08)	11.95 (13.02)	66.27 (66.73)	10.67 (12.77)	75.16 (74.71)	10.53 (15.14)	11.82***	.057	4>1,2,3
Closing Age of Losses in CP	70.40 (70.62)	12.02 (13.67)	72.51 (72.62)	11.16 (12.53)	71.15 (71.25)	10.13 (12.17)	76.19 (75.76)	10.57 (14.53)	4.28**	.021	4>1, 3

Note. ** $p < .01$. *** $p < .001$. Adjusted means and adjusted standard deviations after controlling for the effect of sex, education attainment, and participation in creative activities are in brackets.

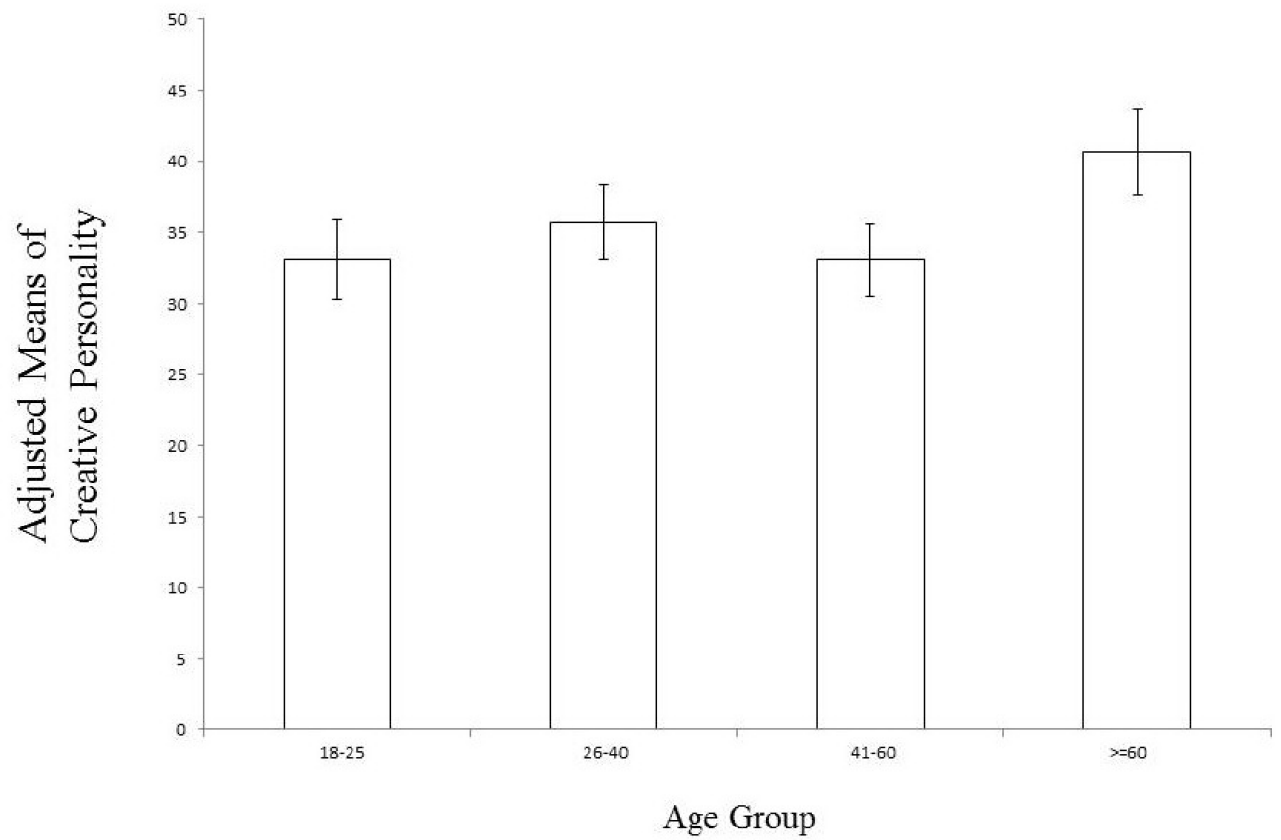


Figure 1. Mean scores of CP with 95% CI, adjusted for sex, education, and creative participation.