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The Japanese Conception of Creativity: Myths and Facts

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ABSTRACT

Empirical research on creativity spanning decades has identified several stereotypes on creativity that are not supported by scientific evidence. Known as creativity myths, these stereotypes can harm an individual's creative endeavors in school or at the workplace. In prior research, the Creativity Myths and Facts Questionnaire (CMFQ) has been used to empirically investigate the extent to which people approved particular myths and facts related to creativity and the reasons for their belief in them (participants from Austria, Germany, Poland, the USA, China, and Georgia). The current study translated the CMFQ into Japanese and surveyed Japanese participants (N = 3,101). The approval rate for creativity myths among the Japanese was 58%, slightly lower than that for creativity facts (61%), a trend similar to that of other countries. The average approval rates for creativity myths in the Japanese sample suggest that the participants, compared to those from the six countries examined in prior research, have a stronger belief that creativity is a rare talent, that creativity is the same as art, or that it is difficult to change creativity. Furthermore, the results show that demographic variables, knowledge sources, and personality type, which have all been identified in existing studies as factors contributing to the belief in creativity myths, have a weak but significant influence among Japanese participants. We also discuss the high rate of uncertainty as a distinct characteristic in Japanese participants' responses to creativity myths and facts.

KEYWORDS:

creativity myth, creativity fact, creativity, misconception

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Since Sternberg (1985) first identified lay people's inner beliefs on creativity as implicit theories of creativity, researchers have identified various types of such implicit theories (e.g., creative mindset, Karwowski, 2014; art bias, Patston, Cropley, Marrone, & Kaufman, 2018). Among these conceptions of creativity, misconceptions that are not supported by empirical evidence are called creativity myths (Boden, 2004; Weisberg, 1986), and they have been said to induce negative impacts on individuals' creativity and creativity interventions in educational settings or organizations when they are inconsistent with scientific evidence (Baas, Koch, Nijstad, & De Dreu, 2015; Ritter & Rietzschel, 2017).

To mitigate the harmful effects of some implicit theories, there have been growing attempts to identify such theories in recent times. Ritter and Rietzschel (2017) classified lay theories of creativity based on the 4P model, which classifies creativity in terms of the 4Ps of person, process, press (environment), and product, and reviewed the gap between scientific findings and the harm this causes. Several empirical studies have examined the extent to which these implicit theories are spread. For instance, Baas et al. (2015) conducted experiments for undergraduates and surveyed people in a crowdsourcing company pool to highlight their strong beliefs related to cognitive processes, mind states, and circumstances. Further, such beliefs were shown to influence individuals' creative outcomes and shape their environment to promote creativity. More recently, Benedek et al. (2021) comprehensively reviewed creativity research and developed the Creativity Myths and Facts Questionnaire (CMFQ), which comprises 15 statements on creativity myths and facts, specifically relating to the definitions, characteristics, processes, and stimulations of creativity. The CMFQ is designed to examine gaps between lay theories and scientific findings similar to neuro-myths (e.g., Howard-Jones, 2014; Krammer, Vogel, Yardimci, & Grabner, 2019). Using the CMFQ, researchers can calculate approval rates for creativity myths and facts and compare them across different groups or cultures. Thus, Benedek et al. (2021) also conducted an international survey and examined the key factors involved in the formation of implicit theories.

One factor that has received attention regarding the formation of creative implicit theories is cultural background. Notably, cultural differences exist in implicit and explicit theories on creativity between East Asia and the West (McCarthy, 2019; Niu, 2019). Several studies comparing the implicit theories of creativity in Asia and the West suggested that Westerners emphasize internal factors of individual creativity. In contrast, the East emphasizes interactions and artifacts as external creativity factors (e.g., Paletz & Peng, 2008; Paletz, Peng, & Li, 2011; Tang, Baer, & Kaufman, 2015). Benedek et al. (2021) compared the prevalence of creativity myths and facts between six countries and showed no multilevel differences. However, most of the six countries in Benedek et al.'s (2021) study were categorized as Western countries (i.e., Australia, Germany, Poland, the USA, Georgia), and the only East Asian country was China. Given the cultural differences within East Asian countries such as China, Korea, and Japan (Guo, Jiang, Lin, & Pang, 2023; Rudowicz & Yue, 2002), it is also necessary to examine differences in the prevalence of creativity myths in these countries. Furthermore, although Benedek et al. (2021) examined cultural differences by integrating 15 creativity myths and facts, each myth or fact may be related to each other, be categorized to several types, or arise from

the same mechanism. In examining these possibilities, it would be meaningful to explore the characteristics of individual myths and facts by country.

As one such attempt, this study examines whether Japan is distinctive compared to other countries based on the prevalence of each creativity myth and fact. Although the Japanese produce some of the most creative products in the world (Anderson, Potocnik, & Zhou, 2014), previous studies have indicated that they do not consider themselves creative when compared to Americans, Europeans, and other nationalities (Adobe, 2017; Ishiguro et al., 2021). Given that the creative self-efficacy, as one of the creative self-beliefs, is related to knowledge and beliefs about creativity (e.g., Karwowski & Kaufman, 2017), it is possible that implicit theories of creativity are related to the Japanese having negative creative self-efficacy. However, international research on implicit theories of creativity comparing Japan and other countries is scant (Niu, 2019). Thus, the current study explores the types of creativity myths prevalent among the Japanese and the factors related to the beliefs on implicit theories.

What kind of creativity myths do the Japanese believe? First, the Japanese have a strong Big-C bias (Agata & Okada, 2010). The Big-C bias is a belief that prioritizes only the kind of creativity that can transform society and history while disregarding everyday creativity (Beghetto, 2010). Creativity encompasses Big-C, Pro-c (professional and domain-specific creativity), little-c (creativity expressed in daily life), and mini-c (personal discoveries in the process of learning; Kaufman & Beghetto, 2009). Agata and Okada (2010) surveyed Japanese undergraduates and showed that they have a Big-C bias in artistic creation, inhibiting individuals' motivation for art making and viewing. To free people from these biases, Agata and Okada (2009) emphasized the importance of understanding the creative process and showed that interventions with hands-on creative experience mitigated such stereotypes. Notably, Japanese engage in creative activities less frequently than Americans (Ishiguro et al., 2023). Indeed, the lesser engagement of the Japanese in creative activities may increase the likelihood of the Big-C bias forming among them.

Second, the fixed mindset in creativity seems to be stronger in Japan than in other Western or Asian countries. A fixed mindset is a creative mindset based on the assumption that creativity is stable and not changeable (Karwowski, 2014). A previous cross-cultural study indicated that the Japanese have a more robust fixed mindset than people in other countries (i.e., Germans and Chinese; Zhou et al., 2013). Considering that a fixed mindset in creativity is associated with lower creative self-efficacy, abilities, and achievements (Hass, Katz-Buonincontro, & Reiter-Palmon, 2016; Karwowski, 2014; Karwowski, Royston, & Reiter-Palmon, 2019), Japanese's fixed mindset can harm their creative performance. These mindsets influence creativity in both the workplace and creative education. Jia, Li, Chen, and Li (2023) found that individuals with a reinforced growth mindset in logo creation tasks are more persistently engaged and perform better than those with a fixed mindset. People with growth mindsets receive higher creativity ratings from their supervisors in the workplace (Puente-Díaz & Karwowski, 2017; Zhou, Yang, & Bai, 2020). These roles of creative mindset are important in educational settings (Karwowski & Barbot, 2016; Paek & Sumners, 2019).

Paek and Sumners (2019) indicated that teachers with fixed mindsets do not recognize children's creative potential or have little confidence in creative teaching.

Finally, art bias is another implicit theory on creativity, which seems to be more distinctive in Japan than in other countries (Ramos, 2005). A person with an art bias believes that the arts are synonymous with creativity and ignores other forms of creativity (e.g., science or everyday creativity). The Japanese equate art and creativity (Ramos, 2005), which can also be related to the Big-C bias. Given that Agata and Okada (2010) found the Big-C bias in artistic creativity, it is suggested that art bias and the Big-C bias may coexist in the Japanese.

This study examines the extent to which the Japanese approve of each creativity myth and fact. Based on previous studies on Japanese creativity myths (e.g., Agata & Okada, 2010; Zhou et al., 2013), we expect that the Japanese would approve of some creativity myths, especially those on the Big-C bias, fixed mindset, and art bias. Since we are not yet at the stage of testing hypotheses about Japanese creativity myths and facts, the aim of the current study is to explore the characteristics of Japanese beliefs on creativity myths and facts by comparing the descriptive statistics with the results from a previous study (Benedek et al., 2021). Therefore, we translated the CMFQ and calculated approval rates for each creativity myth in a Japanese sample. Simultaneously, we examined the influence of demographic characteristics, the type of information sources, and personality type to understand the causes underlying the approval of creativity myths among the Japanese, similar to Benedek et al. (2021). In particular, we sought to clarify whether the demographic factors, sources of knowledge, and personality types, including the creative self and self-evaluation of creativity, are related to Japanese's approval of creativity myths and facts.

METHODS

Participants

A web-based survey was conducted with the help of an Internet survey company (Macromill, Inc.) in March 2023. The survey was for participants who were at least 18 years old and had never been involved in creativity research at the time of study. A total of 3,301 adult participants (1,661 women and 1,640 men; $M_{age} = 48.28$, $SD = 15.75$) completed the questionnaire. Following the data cleaning criterion presented by Benedek et al. (2021), we included an attention check question ("This is a control question. Please select the second option 'incorrect'") in the CMFQ and excluded those who failed to respond accurately. Finally, 2,825 participants (1,483 women and 1,342 men; $M_{age} = 48.71$, $SD = 15.75$) were included. These surveys were approved by the Ethics Committee of the third author's institution. All participants provided informed consent in accordance with the approved guidelines and received rewards following the rules of the research company.

Measures

The Japanese version of the CMFQ. The CMFQ comprises 30 items, including 15 each on creativity myths and facts. The questions concern the definition of creativity, the creative process, the characteristics of creative people, and the method of stimulating creative performance (Table 1ab). We obtained permission from the author of the original questionnaire to develop a Japanese version. Two professional translators, a native English speaker at a translation service company (ulatus: https://www.ulatus.jp/) and a translator specialized in translating educational and psychological articles at the second author's institution, translated the original items into Japanese. Second, the authors reviewed and modified the translations into fluent Japanese, using appropriate expressions. Third, two other professional translators translated the questionnaire back into English. Finally, we asked the author of the original questionnaire to check the discrepancies between the original and translated versions and modified the translations based on the author's suggestions. The final Japanese version of the CMFQ is presented in Table 1ab. The questionnaire includes 10 statements on neuro-myths and facts concerning the neuroscience of learning (Howard-Jones, 2014; Krammer et al., 2019). Based on the procedure outlined by Benedek et al. (2021), the participants were asked to indicate whether they thought each statement was "correct" or "incorrect" or to indicate that they "don't know." The responses were coded as 1 for "correct," 0 for "incorrect," and 0.5 for "don't know." We calculated the average approval rates for each participant (across items, separately for creativity myths, facts, and neuro-myths and facts) and each statement (across participants) according to the original version.

Source of knowledge. The participants were asked to indicate the extent to which they obtained knowledge of psychology and science from scientific articles, lectures/workshops, books/magazines, television, Internet/social media, and friends, using a 5-point rating scale (1 = not at all, 2 = rather little, 3 = intermediate, 4 = rather much, and 5 = very much). An exploratory factor analysis (EFA) using the maximum likelihood method with Oblimin rotation suggested that the six sources can comprise two factors explaining 55% of the variance. Similar to Benedek et al. (2021), the first factor comprised authoritative sources of knowledge (i.e., journal articles and lecture/workshops; $\omega_h = .79$; $\omega_u = .79$, 95%CI [0.77, 0.81]), and the second comprised familiar sources of knowledge (i.e., television, Internet, and friends; $\omega_h = .70$; $\omega_u = .72$, 95%CI [0.70, 0.74]).

Creativity measures. Self-rated creativity was measured using the Japanese version of the Short Scale of Creative Self (SSCS-J; Ishiguro, Matsumoto, Agata, & Okada, 2022) based on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). The SSCS-J indicated a bi-factor structure, and the current study replicated it (CFI = 0.99, RMSEA = 0.05, GFI = 0.99). The reliability for the general factor was also good ($\omega_h = .87$; $\omega_u = .94$, 95%CI [0.93, 0.94]). Thus, the total score was used as the SSCS-J score.

Self-reported everyday creativity was assessed across nine creative domains (i.e., literature, music, handcraft, interior, cooking, visual and performing arts, science and engineering, and social activity) with the question, "Compared to people of your age, how creative are you in the domain

of _____?" (Benedek, Bruckdorfer, & Jauk, 2020). The reliability for the total score was good ($\omega_h = .92$; $\omega_u = .92$, 95%CI [0.91, 0.92]).

Personality. Big-five personality (openness, conscientiousness, extraversion, agreeableness, and neuroticism) were measured using a 10-item short version of the Big-Five inventory (TIPI-J; Oshio, Abe, Cutrone, & Gosling, 2013) based on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree).

Need for cognition. Need for cognition was assessed using a 15-item scale (Kamiyama & Fujiwara, 1991). Although the original version (Kamiyama & Fujiwara, 1991) indicated that the 15 items comprised one-factor structure, recent data collected through web surveys suggest that the 15 items may comprise a two-factor structure, including positive and negative items (Fujishima, Takahashi, Erikawa, & Yamada, 2020). Therefore, the current study compared the fit measures of the one- and two-factor structures. The two-factor structure had a good fit (CFI = 0.94, RMSEA = 0.06, GFI = 0.95), which was better than the one-factor structure ($\chi^2[14] = 2528.1$, $p = 0.00$). Finally, we confirmed the high reliabilities of positive and negative needs for cognition (positive: $\omega_h = .82$; $\omega_u = .83$, 95%CI [0.81, 0.84], negative: $\omega_h = .83$; $\omega_u = .83$, 95%CI [0.82, 0.84]). Thus, the analyses applied the mean value of each factor item.

We measured authoritarianism using a nine-item short scale (Nießen et al., 2019) by developing the Japanese version of the same. English and German versions of the authoritarianism scale have been developed in prior studies (Beierlein et al., 2014; Nießen et al., 2019), but their factor structures differed by language. Therefore, we conducted confirmatory factor analysis (CFA) on the current data by fitting both the factor structure of the English version of the scale and that of the German version of the scale, but the structural validities were poor for both constructs (English version: CFI = 0.79, RMSEA = 0.113, GFI = 0.93; German version: CFI = 0.88, RMSEA = 0.09, GFI = 0.96). Furthermore, the reliability of each subscale was not adequate (conventionalism: $\omega_u = .63$, 95%CI [0.60, 0.65]; submissiveness: $\omega_u = .54$, 95%CI [0.50, 0.56]; aggression: $\omega_u = .50$, 95%CI [0.46, 0.54]; in the English version; conventionalism: $\omega_u = .63$, 95%CI [0.61, 0.66]; submissiveness: $\omega_u = .67$, 95%CI [0.64, 0.69]; aggression: $\omega_u = .50$, 95%CI [0.46, 0.54]; in the German version). Thus, we decided not to include the authoritarianism variable in our subsequent analyses.

All items in each scale were randomly presented to the participants. The current data and analysis codes can be accessed via the Open Science Framework: https://osf.io/6nsmk/.

Data analysis

All analyses were conducted in R 4.2.2. To check the factor structures of each psychological scale, EFA and CFA were conducted using the "psych" (Revelle, 2017) and "lavaan" (Rosseel, 2012) packages, respectively. According to Weston and Gore (2006), the following fit indices for the CFA models were calculated: comparative fit index (CFI; > .90 indicates a good fit), RMSEA (should be ≤ .10), and standardized root-mean residual (SRMR; should be ≤ .08).

RESULTS

On average, 58% of the sample approved creativity myths (see Figure 1, Table 1a and 2b). Benedek et al. (2021) reported seven statements with approval rates exceeding 50%; however, there were 11 such statements in this study (Table 1a). Furthermore, when the mean approval rates for each creativity myth were compared to the means for the Japanese and people in each of the six countries in the previous study (Benedek et al., 2021), "Creativity is a rare gift (Big-C bias: 68%)," "People have a certain amount of creativity, and cannot do much to change it (fixed mindset: 40%)" and "Creativity is essentially the same as art (art bias: 63%)" were higher than that of any of the other countries. These results are consistent with previous findings indicating the high prevalence of creativity myths, such as those linked to the Big-C bias, art bias, or fixed mindset (e.g., Agata & Okada, 2010; Ramos, 2005; Zhou et al., 2013). However, other myths with high approval rates besides those related to the Big-C bias, fixed mindset, and art bias also exist. For instance, the following were the statements that were approved more than those on the Big-C bias: "Creativity cannot be measured" (84%), "Brainstorming in a group generates more ideas than if people were thinking by themselves"(77%), "Children are more creative than adults" (77%), and "Creative ideas are naturally a good thing" (75%). These myths also had high approval rates internationally (Table 2a). The lowest approval rate in Japan was for the item "People get more creative ideas under the influence of alcohol or marijuana" (25%).

Table 1a. The creativity myths questionnaire and Japanese people's statement responses

		Incorrect	do not know	Correct	Approval rate	Uncertainty rate	Approval rate of Benedek et al. (2021)
Myth 1	Creativity cannot be measured	180	533	2112	0.84	0.09	0.58
	創造性は測ることができない	(6%)	(19%)	(75%)			
Myth 2	Creativity is essentially the same as art	463	1179	1183	0.63	0.21	0.39
	創造性はアートと本質的に同じである	(16%)	(42%)	(42%)			
Myth 3	Creative ideas are naturally a good thing	243	938	1644	0.75	0.17	0.59
	創造的なアイデアは本来、良いものである	(9%)	(33%)	(58%)			
Myth 4	Most people would not be able to distinguish abstract art from abstract children's drawings	620	1389	816	0.53	0.25	0.63
	ほとんどの人は、子どもの抽象的なお絵かきと、抽象絵画を区別することができないだろう	(22%)	(49%)	(29%)			
Myth 5	Creative accomplishments are usually a result of sudden inspiration	598	1166	1061	0.58	0.21	0.58
	創造的な成果は、通常、突然のひらめきの結果である	(21%)	(41%)	(38%)			

		Incorrect	do not know	Correct	Approval rate	Uncertainty rate	Approval rate of Benedek et al. (2021)
Myth 6	Creative thinking mostly happens in the right hemisphere of the brain	271	1945	609	0.56	0.34	0.54
	創造的思考は、主に右脳で行われている	(10%)	(69%)	(22%)			
Myth 7	Creativity is a solitary activity	753	1224	848	0.52	0.22	0.25
	創造は、孤独な活動である傾向がある	(27%)	(43%)	(30%)			
Myth 8	Creativity is a rare gift	486	834	1505	0.68	0.15	0.29
	創造性は、類まれなる才能である	(17%)	(30%)	(53%)			
Myth 9	People have a certain amount of creativity, and cannot do much to change it	1095	1216	514	0.40	0.22	0.19
	人がもつ創造性は一定であり、なかなかそれを変えることができない	(39%)	(43%)	(18%)			
Myth 10	Children are more creative than adults	282	761	1782	0.77	0.13	0.68
	子どもは大人よりも創造的である	(10%)	(27%)	(63%)			
Myth 11	Exceptional creativity is usually accompanied by mental health disorders	994	1341	490	0.41	0.24	0.40
	並外れた創造性は、たいてい、精神疾患と表裏一体である	(35%)	(47%)	(17%)			
Myth 12	People get more creative ideas under the influence of alcohol or marijuana	1647	946	232	0.25	0.17	0.43
	飲酒や違法薬物の作用で、より創造性の高いアイデアが得られる	(58%)	(33%)	(8%)			
Myth 13	Long-term schooling has a negative impact on the creativity of children	1013	1375	437	0.40	0.24	0.49
	長期間の学校教育は、子どもの創造性に悪影響を与える	(36%)	(49%)	(15%)			
Myth 14	Brainstorming in a group generates more ideas than if people were thinking by themselves	207	871	1747	0.77	0.15	0.80
	グループでのブレインストーミングをすると、一人で考えるよりも多くのアイデアが生まれる	(7%)	(31%)	(62%)			
Myth 15	One is most creative when with total freedom in one's actions	528	1322	975	0.58	0.23	0.70
	人は、完全に自由な行動をとれる時、最も創造的である	(19%)	(47%)	(35%)			

Note. Myths 2, 8, and 9 indicate art and Big-C biases, and fixed mindset, respectively

Table 2a. Comparison of the approval and uncertainty rates of creativity myths in seven countries

	Japan		Austria		Germany		Poland		Georgia		China		USA	
	A	U	A	U	A	U	A	U	A	U	A	U	A	U
Myth 1	0.84	0.09	0.55	0.09	0.56	0.13	0.52	0.10	0.63	0.08	0.47	0.04	0.77	0.07
Myth 2 (art bias)	0.63	0.21	0.19	0.04	0.20	0.07	0.30	0.05	0.56	0.06	0.58	0.09	0.47	0.07
Myth 3	0.75	0.17	0.71	0.06	0.59	0.09	0.48	0.10	0.43	0.08	0.47	0.07	0.89	0.04
Myth 4	0.53	0.25	0.66	0.06	0.65	0.07	0.66	0.09	0.57	0.10	0.75	0.12	0.52	0.11
Myth 5	0.58	0.21	0.51	0.08	0.38	0.09	0.54	0.08	0.74	0.06	0.65	0.04	0.55	0.12
Myth 6	0.56	0.34	0.49	0.21	0.48	0.30	0.56	0.25	0.55	0.34	0.59	0.20	0.55	0.29
Myth 7	0.52	0.22	0.17	0.05	0.19	0.07	0.13	0.05	0.41	0.08	0.32	0.05	0.26	0.08
Myth 8 (Big-C bias)	0.68	0.15	0.12	0.05	0.11	0.04	0.20	0.06	0.51	0.11	0.36	0.04	0.37	0.06
Myth 9 (fixed mindset)	0.40	0.22	0.17	0.06	0.27	0.08	0.13	0.05	0.30	0.09	0.12	0.03	0.20	0.08
Myth 10	0.77	0.13	0.74	0.07	0.65	0.10	0.79	0.05	0.54	0.09	0.71	0.07	0.66	0.12
Myth 11	0.41	0.24	0.42	0.13	0.41	0.16	0.44	0.10	0.33	0.16	0.43	0.13	0.36	0.16
Myth 12	0.25	0.17	0.50	0.13	0.49	0.16	0.49	0.12	0.34	0.15	0.29	0.12	0.48	0.18
Myth 13	0.40	0.24	0.48	0.13	0.38	0.12	0.52	0.13	0.62	0.14	0.48	0.09	0.43	0.19
Myth 14	0.77	0.15	0.84	0.03	0.80	0.05	0.87	0.03	0.62	0.08	0.85	0.06	0.82	0.08
Myth 15	0.58	0.23	0.63	0.06	0.59	0.09	0.76	0.06	0.80	0.04	0.63	0.07	0.77	0.07
Average	0.58	0.20	0.48	0.08	0.45	0.11	0.49	0.09	0.53	0.11	0.51	0.08	0.54	0.11

Note: A means Approval rate and U means Uncertainty rate. The approval and uncertainty rates of the six countries other than Japan were calculated using the data in Benedek et al. (2021)

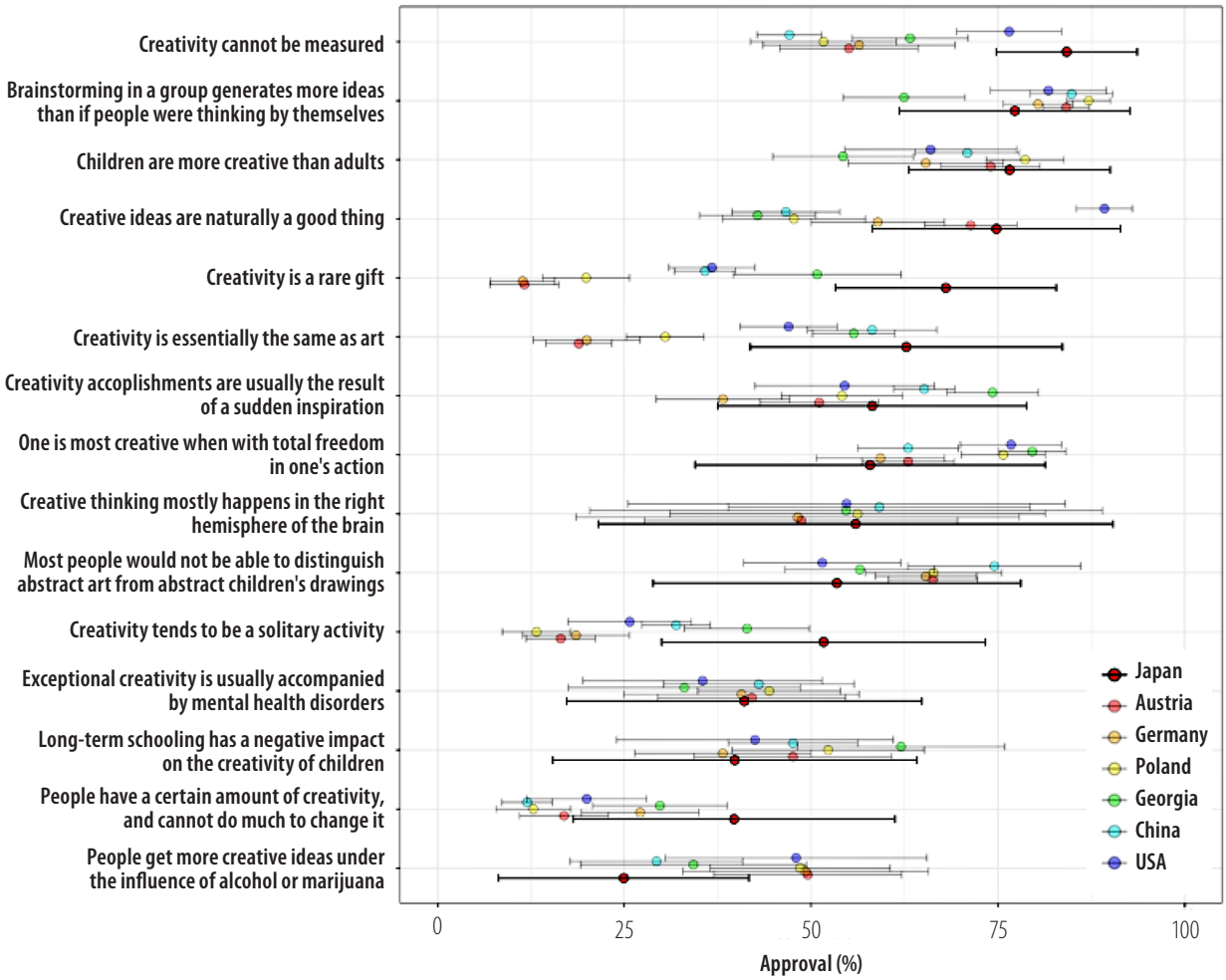

Figure 1. Creativity myths and Japanese approval rates were ranked by average approval (red markers)

Note: The points (gray bars) represent the overall approval rates (uncertainty rates) for creativity myths across six countries (Austria, China, Georgia, Germany, Poland, and the USA) in Benedek et al. (2021). Error bars show the relative frequency of the "do not know" option

The approval rate for creativity facts was 61% on average in the Japanese sample (Figure 2, Table 2b) and significantly higher than that of creativity myths (t [2824] = 11.75, d = 0.21, $p < .001$). This tendency to approve creativity facts rather than creativity myths is similar to previous research results (68% for creativity facts; Benedek et al., 2021). Among Japanese, the statement that received the highest approval was "When stuck on a problem, it is helpful to continue working on it after a break" (87%), but lower than the average approval rate of the sample from the other six countries (Benedek et al., 2021). In general, the Japanese approved creativity facts at a similar level as the averages for the people from the other six countries in a previous study (Benedek et al., 2021), but most creativity fact approval rates were lower than the averages for the six countries examined in a previous study. However, there were some creativity facts with average approval rates higher among the Japanese compared to the samples of the other six countries from the prior study (e.g., "To be considered creative, something has to be both novel and useful or appropriate" [59%]; "Teachers appreciate the idea of creativity but not necessarily creative pupils" [64%]; "Achieving

a creative breakthrough in a domain (i.e., publishing a successful novel) typically requires at least 10 years of deliberate practice and work" [38%]; and "Men and women generally do not differ in their creativity" [62%]).

Table 1b. The creativity facts questionnaire and Japanese people's statement responses

		Incorrect	do not know	Correct	Approval rate	Uncertainty rate	Approval rate of Benedek et al. (2021)
Fact 1	To be considered creative, something has to be both novel and useful or appropriate	543	1239	1043	0.59	0.22	0.46
	創造的と見なされるには、新しく、かつ、役に立つ（適切な）何かが必要である	(19%)	(44%)	(37%)			
Fact 2	Teachers appreciate the idea of creativity but not necessarily creative pupils	456	1121	1248	0.64	0.20	0.60
	先生は創造性を重視するが、創造的な生徒は必ずしも評価されない	(16%)	(40%)	(44%)			
Fact 3	Whether something is viewed as creative depends on zeitgeist and social norms	352	1052	1421	0.69	0.19	0.81
	創造的だと見られるかどうかは、そのときの時代精神や社会規範によって決まる	(12%)	(37%)	(50%)			
Fact 4	Creativity is an important part of mathematical thinking	511	1577	737	0.54	0.28	0.66
	創造性は、数学的思考の重要な一部である	(18%)	(56%)	(26%)			
Fact 5	Creative ideas are typically based on remembered information that is combined in new ways	297	1358	1170	0.65	0.24	0.83
	創造的なアイデアは、通常、記憶された情報が新たな方法で組み合わさったものがベースとなっている	(11%)	(48%)	(41%)			
Fact 6	The first idea someone has is often not the best one	982	1493	350	0.39	0.26	0.48
	最初に思いついたアイデアは、多くの場合、最良のアイデアではない	(35%)	(53%)	(12%)			
Fact 7	Alpha activity (10 Hz) in the brain plays an important role in creative thought	156	2132	537	0.57	0.38	0.61
	創造的な思考には、脳内のアルファ波(10Hz)が重要な役割を果たしている	(6%)	(75%)	(19%)			
Fact 8	Creative people are usually more open to new experiences	286	1212	1327	0.68	0.21	0.87
	創造的な人は、通常、新しい経験に対してよりオープンである	(10%)	(43%)	(47%)			
Fact 9	Creative people are usually more intelligent	703	1407	715	0.50	0.25	0.59
	創造的な人は、通常、より知的である	(25%)	(50%)	(25%)			

		Incorrect	do not know	Correct	Approval rate	Uncertainty rate	Approval rate of Benedek et al. (2021)
Fact 10	Achieving a creative breakthrough in a domain (i.e., publishing a successful novel) typically requires at least 10 years of deliberate practice and work	965	1558	302	0.38	0.28	0.37
	ある領域で創造的なブレークスルーを達成する (例：ベストセラー小説を出版する) には、通常、少なくとも 10 年間のよく考えられた訓練と作業が必要である	(34%)	(55%)	(11%)			
Fact 11	Men and women generally do not differ in regards to creativity	562	1020	1243	0.62	0.18	0.58
	男性と女性は、一般的に創造性に違いはない	(20%)	(36%)	(44%)			
Fact 12	A man's creativity increases his attractiveness to potential partners	414	1696	715	0.55	0.30	0.75
	男性が創造的であると、パートナーとなり得る相手にとって魅力が増す	(15%)	(60%)	(25%)			
Fact 13	When stuck on a problem, it is helpful to continue working on it after taking a break	131	464	2230	0.87	0.08	0.97
	問題につまづいた時には、休憩を挟んでから再開すると、効果的である	(5%)	(16%)	(79%)			
Fact 14	Positive moods help people get creative ideas	244	836	1745	0.77	0.15	0.81
	ポジティブな気分は、創造的なアイデアを生み出すのに役立つ	(9%)	(30%)	(62%)			
Fact 15	Getting rewarded for creative performance at work increases one's creativity	403	1178	1244	0.65	0.21	0.78
	仕事での創造的なパフォーマンスに対して報酬を受けることで、さらに創造性が高まる	(14%)	(42%)	(44%)			

Note. The Fact 1 statement shows the standard definition of creativity in the scientific findings, which is different from originality bias

Table 2b. Comparison of the approval and uncertainty rates of creativity facts in seven countries

	Japan		Austria		Germany		Poland		Georgia		China		USA	
	A	U	A	U	A	U	A	U	A	U	A	U	A	U
Fact 1	0.59	0.22	0.30	0.05	0.26	0.05	0.44	0.05	0.68	0.02	0.70	0.03	0.29	0.06
Fact 2	0.64	0.20	0.70	0.11	0.56	0.11	0.78	0.06	0.39	0.12	0.53	0.05	0.65	0.14
Fact 3	0.69	0.19	0.88	0.03	0.83	0.03	0.85	0.05	0.80	0.06	0.81	0.06	0.70	0.15
Fact 4	0.54	0.28	0.65	0.11	0.66	0.11	0.74	0.09	0.50	0.12	0.82	0.06	0.60	0.12
Fact 5	0.65	0.24	0.82	0.12	0.81	0.11	0.84	0.08	0.85	0.04	0.93	0.05	0.73	0.15
Fact 6	0.39	0.26	0.47	0.12	0.49	0.13	0.35	0.09	0.73	0.06	0.30	0.13	0.54	0.15
Fact 7	0.57	0.38	0.57	0.39	0.55	0.44	0.59	0.39	0.60	0.37	0.79	0.18	0.54	0.43

	Japan		Austria		Germany		Poland		Georgia		China		USA	
	A	U	A	U	A	U	A	U	A	U	A	U	A	U
Fact 8	0.68	0.21	0.88	0.05	0.80	0.09	0.87	0.05	0.87	0.06	0.94	0.03	0.86	0.08
Fact 9	0.50	0.25	0.52	0.14	0.51	0.13	0.69	0.11	0.56	0.11	0.74	0.06	0.52	0.18
Fact 10	0.38	0.28	0.31	0.12	0.33	0.13	0.34	0.11	0.36	0.09	0.62	0.12	0.29	0.14
Fact 11	0.62	0.18	0.59	0.08	0.63	0.09	0.59	0.12	0.62	0.13	0.53	0.11	0.51	0.16
Fact 12	0.55	0.30	0.67	0.17	0.63	0.16	0.85	0.11	0.71	0.12	0.89	0.07	0.72	0.18
Fact 13	0.87	0.08	0.98	0.01	0.97	0.01	0.96	0.01	0.96	0.02	0.99	0.01	0.95	0.03
Fact 14	0.77	0.15	0.78	0.07	0.86	0.04	0.78	0.06	0.72	0.11	0.95	0.02	0.80	0.09
Fact 15	0.65	0.21	0.78	0.10	0.70	0.11	0.82	0.06	0.69	0.08	0.87	0.05	0.82	0.09
Average	0.61	0.23	0.66	0.11	0.64	0.12	0.70	0.10	0.67	0.10	0.76	0.07	0.63	0.14

Note: A means Approval rate and U means Uncertainty rate. The approval and uncertainty rates of six countries other than Japan were calculated using the data in Benedek et al. (2021)

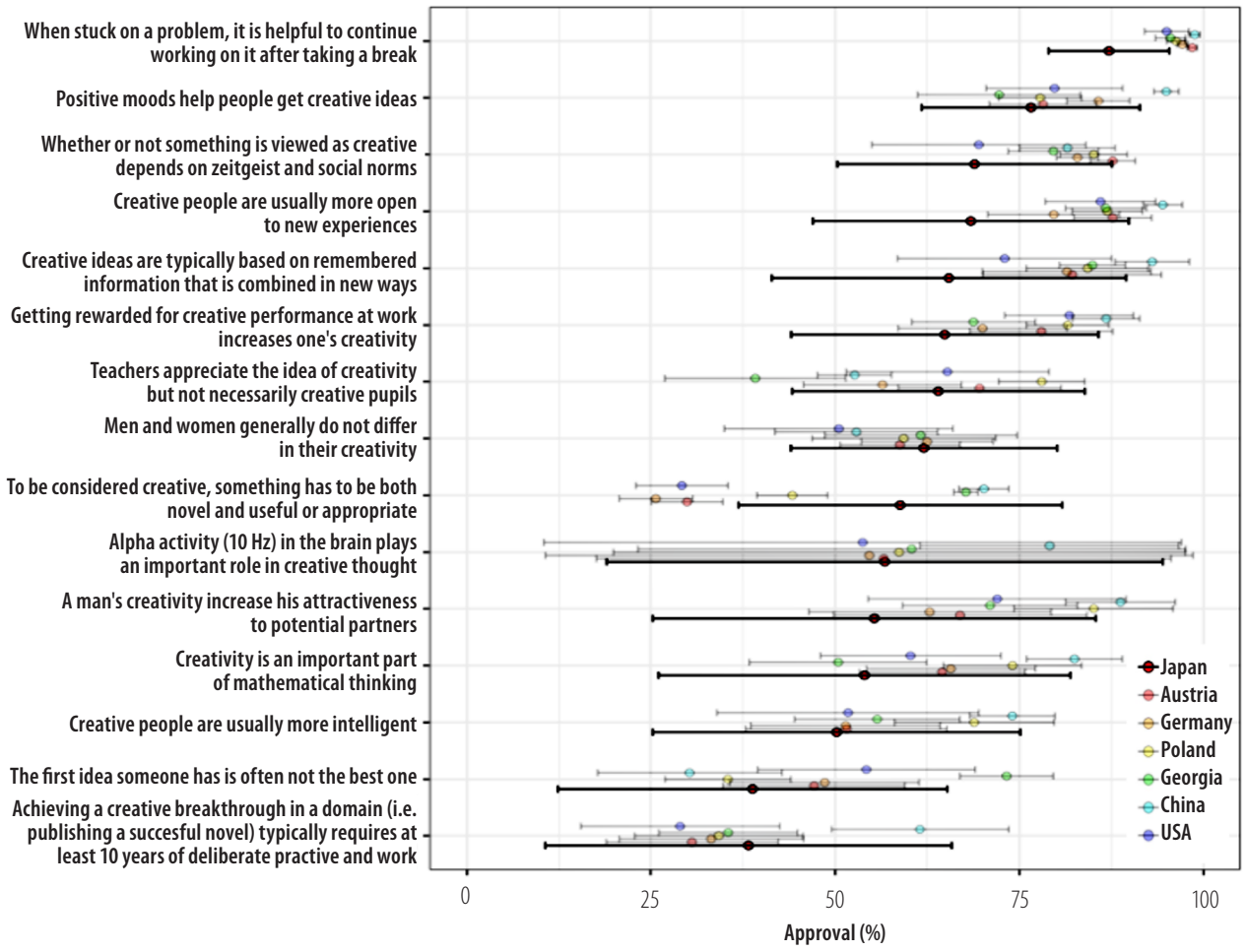

Figure 2. Creativity facts and Japanese approval rates were ranked by average approval (red markers)

Note: The points (gray bars) represent the overall approval rates (uncertainty rates) for creativity myths across six countries (Austria, China, Georgia, Germany, Poland, and the USA) in Benedek et al. (2021). Error bars show relative frequency of "do not know"

Reasons for believing in creativity myths

We replicated the examination of reasons for believing in creativity myths in the Japanese sample. We first computed the individual total approval rate of 15 creativity myths and facts. Then, we examined how the individual difference factors are related to the approval rate of creativity myths by performing multiple regression analyses according to the rationale of analyses from previous studies (Benedek et al., 2021; Dekker, Lee, Howard-Jones, & Jolles, 2012). Based on Benedek et al.'s (2021) research, this study set demographic variables, knowledge of creativity and neuroscience, source of knowledge, and personality traits as predictor variables. Table 3 presents the descriptive statistics. Subsequent analyses were performed with the predictor variables in which continuous variables were transformed into z-standardized scores. First, we set the predictors in three steps (Block 1: demographic factors, neuro-myths, and knowledge on creativity and neuroscience; Block 2: sources of knowledge; Block 3: personality and creativity measures). Finally, we tested whether adding individual predictors improved the model fit. All models explained a significant proportion of the variance, and the final model, including all the blocks, was superior to the others. The final model explained 39% of the variance ($R^2 = 0.39$) in the approval of myths (F [17, 2807] = 103.50, $p < .001$). Table 4 presents the regression coefficients of all predictors.

Demographic factors, neuro-myths, and knowledge

Japanese beliefs concerning creativity myths were related to age ($\beta = -0.01$, $p < 0.001$) and years of education ($\beta = -0.01$, $p < 0.001$). People believing creativity myths also endorsed creativity facts ($\beta = 0.50$, $p < 0.001$) and neuro-myths ($\beta = 0.09$, $p < 0.001$) and facts more often ($\beta = 0.07$, $p < 0.001$).

Sources of knowledge

The Japanese approved of creativity myths less when they relied on authoritative sources of knowledge, such as journals and lectures ($\beta = -0.01$, $p = 0.046$). However, popular sources of knowledge, including TV, the Internet, and friends, were unrelated to beliefs concerning creativity myths.

Personality

Approval of creativity myths was related to extraversion ($\beta = 0.01$, $p = 0.026$) and neuroticism ($\beta = 0.01$, $p = 0.001$), which is consistent with previous research (Benedek et al., 2021). However, approval was not significantly related to the creative self ($\beta = -0.01$, ns) but related to the need for cognition (higher: $\beta = 0.01$, $p = 0.008$; lower: $\beta = 0.02$, $p < 0.001$).

We also examined the factors underlying the belief in creativity facts. The approval of creativity facts was negatively related to self-rated creativity ($\beta = -0.01$, $p = 0.049$) and positively related to the creative self ($\beta = 0.01$, $p = 0.004$). Associations with the lower need for cognition diminished in the case of the belief in creativity facts.

Table 3. Descriptive statistics of variables

	M	SD	min	max	skew	kurtosis	ω_h
Age	48.71	15.75	18.00	75.00	-0.09	-1.09	-
Sex	0.48	0.50	1.00	2.00	-0.10	-1.99	-
Years of education	14.22	2.01	9.00	21.00	-0.17	-0.32	-
Creativity myths	57.76	14.06	0.00	100.00	-0.31	0.60	-
Correct (%)	37.65	20.43	0.00	100.00	100.00	0.18	
Uncertain (%)	40.21	25.93	0.00	100.00	100.00	0.45	
Creativity facts	60.65	13.95	0.00	100.00	-0.28	0.93	-
Correct (%)	37.82	21.96	0.00	100.00	100.00	0.22	
Uncertain (%)	45.65	27.38	0.00	100.00	100	0.24	
Neuro myths	63.69	17.58	0.00	100.00	-0.31	0.60	-
Correct (%)	40.16	27.76	0.00	100.00	100.00	0.22	
Uncertain (%)	47.07	31.81	0.00	100.00	100	0.09	
Neuro facts	59.37	18.34	0.00	100.00	-0.21	0.24	-
Correct (%)	34.00	27.51	0.00	100.00	100.00	0.41	
Uncertain (%)	50.75	31.89	0.00	100.00	100.00	-0.03	
Source1 (journal and lecture/workshops)	1.73	0.93	1.00	5.00	1.10	0.17	.79
Source2 (television, Internet and friends)	2.63	0.91	1.00	5.00	-0.04	-0.68	.70
Extraversion	3.57	1.29	1.00	7.00	0.09	-0.39	-
Agreeableness	4.78	1.12	1.00	7.00	-0.48	0.35	-
Conscientiousness	3.96	1.26	1.00	7.00	-0.14	-0.16	-
Neuroticism	4.14	1.26	1.00	7.00	0.07	-0.15	-
Openness	3.62	1.18	1.00	7.00	0.00	-0.07	-
Creative self-identity	3.53	1.12	1.00	7.00	-0.06	-0.09	.87
Self-rated creativity	2.79	1.22	1.00	6.56	0.20	-0.76	.92
Higher need for cognition	3.52	0.99	1.00	7.00	-0.22	0.23	.82
Lower need for cognition	3.85	0.95	1.00	7.00	0.04	0.71	.83

Note: The Japanese participants in this study were different from those in Benedek et al. (2021) in terms of age and education. The Japanese participants were relatively older (mean age = 48.71) and less educated (mean education years = 14.22) than those in Benedek et al. (2021; mean age = 29.7; mean education years = 16.5)

Table 4. Estimates of creativity myths/facts and knowledge in hierarchical multiple regression analyses

	Creativity myth			Creativity facts		
	β	p		β	p	
Block1						
Age	-0.014	0.000	**	0.006	0.004	**
Sex	-0.002	0.405		0.004	0.109	
Years of education	-0.013	0.000	***	0.009	0.000	***
Creativity facts/myths	0.496	0.000	***	0.467	0.000	***
Neuro myths	0.094	0.000	***	0.124	0.000	***
Neuro facts	0.068	0.000	***	0.111	0.000	***
Block2						
Source 1 (journal, lecture)	-0.005	0.046	*	0.007	0.006	**
Source 2 (TV, Internet, friends)	0.004	0.110		-0.001	0.578	
Block3						
Extraversion	0.005	0.026	*	-0.006	0.013	*
Agreeableness	0.004	0.120		0.004	0.123	
Conscientiousness	0.002	0.341		-0.001	0.774	
Neuroticism	0.009	0.001	***	-0.006	0.010	**
Openness	-0.001	0.734		-0.001	0.698	
Self-rated creativity	-0.003	0.249		-0.005	0.049	*
Creative self	0.001	0.696		0.009	0.004	**
Higher need for cognition	0.007	0.008	**	0.006	0.029	*
Lower need for cognition	0.018	0.000	***	-0.002	0.434	

Note: Creativity myth/facts were input in Block 1. Fact was input when creativity myths was the objective variable, and myth was input when fact was the objective variable

The average rate of uncertainty about creativity myths/facts was more than twice as high for the Japanese as compared to people from other countries (see Table 2ab and Figures 1 and 2). To examine the reason for the high rate of uncertainty among the Japanese, we conducted a multiple regression analysis similar to the one described above, using the percentage of "I don't know" as the objective variable (Table S1). The results showed that the uncertainty rate for the creativity myth was significantly positively related to years of education ($\beta = 0.01$, $p = 0.002$), contact with reliable information ($\beta = 0.01$, $p = 0.018$), and self-rated creativity ($\beta = 0.01$, $p < 0.001$), and negatively related to unreliable information ($\beta = -0.01$, $p = 0.002$), extraversion ($\beta = -0.01$, $p = 0.027$), and agreeableness ($\beta = -0.01$, $p = 0.004$). Whereas, the rate of uncertainty of creativity facts was negatively related to years of education ($\beta = -0.01$, $p = 0.003$), reliable sources of information ($\beta = -0.01$, $p = 0.024$), and neuroticism ($\beta = -0.01$, $p = 0.043$).

Table S1. Estimates of Uncertainty rate of creativity myths/facts in hierarchical multiple regression analyses

	Creativity myth (Uncertain)			Creativity facts (Uncertain)		
	β	p		β	p	
Block1						
Age	-0.002	0.416		0.004	0.129	
Sex	0.005	0.089		-0.014	<.001	***
Years of education	0.008	0.002	**	-0.008	0.003	**
Creativity facts/myths	0.668	<.001	***	0.708	<.001	***
Neuro myths	0.105	<.001	***	0.108	<.001	***
Neuro facts	0.064	<.001	***	0.034	<.001	***
Block2						
Source 1 (journal, lecture)	0.007	0.018	*	-0.007	0.024	**
Source 2 (TV, Internet, friends)	-0.009	0.002	**	0.005	0.102	
Block3						
Extraversion	-0.006	0.027	*	0.001	0.709	
Agreeableness	-0.009	0.004	**	-0.001	0.814	
Conscientiousness	0.002	0.556		-0.001	0.764	
Neuroticism	0.005	0.113		-0.007	0.043	*
Openness	0.002	0.607		-0.005	0.176	
Self-rated creativity	0.014	<.001	***	-0.005	0.150	
Creative self	-0.003	0.522		-0.007	0.113	
Higher need for cognition	0.001	0.804		0.004	0.259	
Lower need for cognition	0.001	0.751		0.004	0.231	

Note: Creativity myths/facts were input in Block 1. Fact was input when creativity myth was the objective variable, and myth was input when fact was the objective variable

DISCUSSION

In this study, we translated the CMFQ into Japanese and examined the extent to which Japanese people approve of creativity myths and facts and why they do so. The results indicated that, on average, 58% and 61% of Japanese approved of creativity myths and facts, respectively. This finding—of the approval rate of creativity myths being lower than that of creativity facts—is consistent with that of Benedek et al. (2021), who noted similar trends in the prevalence rates of myths (50%)

and facts (68%). The results suggest that the Japanese approve several creativity myths and facts similar to people from other countries (Benedek et al., 2021).

Japanese (mis)conceptions of creativity

This study focused on several implicit theories that can harm people's creativity or creative education in schools and workplaces. Among the Japanese, the Big-C bias, fixed mindset, and art bias had higher average approval rates than those in Benedek et al.'s (2021) study, when comparing the mean scores. The Big-C bias was in the top five in the CMFQ's list of creativity myths, with a 68% approval rate for Japanese, which is also higher than the average approval rate for the other six countries. Art bias also had a higher level of approval, which was second to the Big-C bias, and had a higher approval rate than the average of the other countries. As shown in a previous study (Zhou et al., 2013), the approval rate of fixed mindset was higher than the average of the other counties, but it was not as high as the Big-C bias and art bias (at 40%).

Besides these biases, there were other creativity myths whose approval rates were as high as 70% or more, exceeding the international average. For example, myths about measuring creativity (Myth 1: "Creativity cannot be measured") may motivate the Japanese to refuse the measurement of creativity in the future, even if there are several methods to do so in workplaces or educational settings (e.g., Amabile, 1983; Kaufman, 2019; Silvia, Wigert, Reiter-Palmon, & Kaufman, 2012; Torrance, 1972). The idea that "Children are more creative than adults" can be seen as a tendency to approve of children's creativity, but it can also induce ignorance of the fact that the amount of knowledge and skills related to creativity increases across the developmental stages (Barbot, Besançon, & Lubart, 2016) and disregards the education that encourages it (Beghetto, 2019).

Constructing implicit theories of creativity: The role of individual background

This study found that demographic factors such as age, years of education, and the tendency to believe in other myths and facts motivated the belief in creativity myths and facts among the Japanese. The fact that age and years of education are negatively correlated with beliefs in myths indicates that people may accumulate more creative activity and knowledge about it as they become older and gain more education. Sources of knowledge had different associations with creativity myths and facts, suggesting that the belief in myths was negatively correlated with scientific knowledge, and in fact, the belief in facts was positively correlated with scientific knowledge. These results are generally consistent with Benedek et al.'s (2021) findings.

By contrast, in this study, the associations between personality and beliefs in creativity myths and facts differed slightly from those reported by Benedek et al. (2021). While it was consistent that neuroticism was positively related to beliefs in the myths, the current study did not replicate the positive correlation with conscientiousness but indicated a positive correlation with extraversion. This may be caused by the positive relationships between extraversion and exposure to the source of knowledge (source 1: $r = 0.13$, $p < .001$; source 2: $r = 0.12$, $p < .001$); that is, Japanese with higher extraversion are likely to obtain knowledge from various sources. No relationship with the crea-

tivity myth was found, yet a positive correlation with the creativity fact was observed. Although the need for cognition was negatively correlated with myths (Benedek et al., 2021), in the present study, both the forward and reverse items of the need for cognition were positively correlated with myths. However, the effect sizes of the regression coefficients for these individual factors were relatively small, indicating rather strong relationships between the belief in myths/facts and other myths/facts. This tendency was reported for creativity myths and facts (Benedek et al., 2021) and for neuro-myths (Dekker et al., 2012; Krammer et al., 2019), suggesting that response patterns are not based on knowledge of creativity and neuroscience, but rather on heuristics such as whether each myth/fact statement sounds scientifically plausible.

Japanese uncertainty concerning creativity myths and facts

The uncertainty rate was another notable characteristic among the Japanese in response to the creativity myths/facts. For instance, whereas 42% approved of the art bias and 42% reported that they did not know about it, only 16% fully denied it, suggesting that most were uncertain about it. The Big-C bias was one of the myths with the higher percentage of "correct" responses (53%) and a considerable rate (30%) of "do not know" responses. The fixed mindset bias was denied by 39% of the Japanese. However, they were also more inclined to select "do not know" (43%) in this case. Concerning creativity facts, "To be considered creative, something has to be both novel and useful or appropriate," which was related to the definition of creativity and originality bias, the Japanese had a relatively higher approval rate (59%) than the average of people in foreign countries (46%). However, only 37% of the Japanese selected it as correct, and 44% were unsure, suggesting that the confidence level needed to be higher.

Most creativity myths and facts held by the Japanese revealed uncertainty rates twice as high as the average uncertainty rates of people from other countries. In the case of creativity facts, the uncertainty rate in Japan was even five times higher than that of other countries ("To be considered creative, something has to be both novel and useful or appropriate [22%]"). It is known that people in Asian countries such as Japan, Taiwan, and China avoid expressing extreme attitudes and opinions and are more likely to select "neither agree nor disagree" (Chen, Lee, & Stevenson, 1995; Lee, Jones, Mineyama, & Zhang, 2002). The results of this study reflect such tendencies in Japanese society. However, it is difficult to attribute them solely to differences between Western and East Asian societies, since the current study showed that the uncertainty rate in Japan is considerably higher than that in China. Literally, "I don't know' means that one cannot judge the correctness of the statement because of a lack of knowledge, but it could also imply neutrality or avoiding the burden of judgment (Baka, Figgou, & Triga, 2012).

To understand the causes of these differences, this study conducted additional multiple regression analyses with the uncertainty rate of creativity myths/facts as the objective variable and demographic variables, sources of knowledge, and personality as explanatory variables. The results showed that the uncertainty rate of the creativity myth is positively related to years of education, reliable sources of information, and self-rated creativity and negatively related to unreliable sources

of information and personality, such as agreeableness. These results suggest that the uncertainty rate was not an attempt to avoid the burden; instead, those who were more likely to be educated and have access to reliable sources of information were expressing their lack of knowledge as they tried to determine the correctness or incorrectness of the creativity myth statements. However, the associations between the uncertainty rate for creativity facts and individual difference variables were different from those for creativity myths. That is, the uncertainty rate for creativity facts was negatively related to longer years of education, reliable sources of information, and neuroticism under personality type. These results suggest that such uncertainty indicates the avoidance of the judgment burden. Because all the creativity myths and facts sentences were presented randomly, it can be assumed that uncertainty responses depended on the sentences. The causes of these differences should be examined in future studies.

Limitations and directions for future research

This study has several limitations. First, we translated the CMFQ, developed based on comprehensive reviews of creativity research. This scale makes it possible to compare myths/facts in various countries or groups and understand how cultural backgrounds and individual differences in forming individual myths affect the process. However, there are several limitations in the original questionnaire (detailed in Benedek et al., 2021), especially the fact that most findings on which creativity myths/facts are based in this scale are from studies conducted in Western society, which may affect how non-Westerners respond to the myths/facts. Considering this possibility, further studies should examine differences in the spread of the concept across cultures in an exploratory manner based on descriptions and interview protocols on creativity without prescribing the creativity concept. In recent years, an increasing number of studies have been conducted using tweet data from social media and descriptions of creativity in several countries, which have been compared internationally (Ceh, Christensen, Lebuda, & Benedek, 2023; Karwowski, Gralewski, Patston, Cropley, & Kaufman, 2020). Such an approach of analyzing statements and tweets about creativity in the real world may reveal how creativity is perceived in different cultures without the researchers defining the concept of creativity.

Second, this study only compared responses to creativity myths/facts in Japan and other countries based on descriptive statistics, with no inferential statistical comparisons performed. We collected as large a sample of Japanese adults as possible and clarified the characteristics of Japanese beliefs in creativity myths/facts. However, it was not possible to statistically compare the results with data from similar populations in other countries because the Japanese sample and the samples in Benedek et al.'s (2021) study had different population attributes regarding age and years of education. Similar populations in various countries need to be evaluated and compared in the future. As definitions and other aspects of creativity differ between the West and East (e.g., Li, 1997; Ng, 2001), researchers should clarify such differences in the future.

Third, this study also attempted to replicate the examination of individual differences behind the creativity myths/facts endorsed in a Japanese sample. However, the replication needs improvement

with respect to the measurement of several individual differences. For example, we could not find appropriate Japanese version scales for abnormal beliefs. Although we attempted to translate an authoritarianism scale, its validity or reliability could not be replicated in the Japanese sample, so it could not be included in our further analysis. Moreover, applying the short version of the Big-Five personality measure can cause variance reduction, leading to a decline in personality explanatory power for creativity myths/facts. Future research should improve the measurement of these individual differences in various cultures. Further, studies should examine individual difference factors related to cultural values to better explain the approval and uncertainty rates of myths and facts. Guo et al. (2023) highlighted the need to examine individual differences within a country and compare cultural differences at the country level. Focusing on the individual differences in horizontal-vertical collectivism and individualism within the same country showed that these differences affect creativity in each country (the US and China). In the future, it is necessary to understand the background of creativity conceptualization, incorporating more detailed individual differences related to cultural background. Thereby, studies can focus on the approval and uncertainty of creativity myths and facts. One distinctive characteristic of the Japanese sample in this study was the high uncertainty for creativity myths/facts. Since the Chinese did not have as high a level of uncertainty as the Japanese (Benedek et al., 2021), individual differences across cultures or variations in cultural backgrounds within Asia may be involved in the uncertainty responses. Future studies should also focus on the factors that produce such differences in detailed responses to creativity myths and facts.

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