

Be real, open, and creative: How openness to experience and to change mediate the authenticity-creativity association

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ABSTRACT

Although several researchers have suggested that authenticity fosters individuals' creativity, few empirical studies have focused on this research topic, and even fewer have examined the underlying mechanism. To address this gap, this study examined the relationships among authenticity, openness to experience, openness to change, and creativity. Three hundred Chinese participants (246 women, mean age = 20.36 years) were recruited via an online survey website and they were asked to complete the Authenticity Scale, the Openness to Experience Scale, the Routine Seeking Scale (i.e., as a measure of openness to change), the Creative Behavior Scale, and two divergent thinking tasks (i.e., the alternative uses task, AUT). The results revealed positive associations among all the variables of interest (i.e., authenticity, openness to experience, openness to change, self-reported creative behavior, AUT fluency, AUT originality, and AUT flexibility). Moreover, both openness to experience and to change fully mediated the association between authenticity and self-reported creative behavior, AUT fluency, and AUT flexibility. In addition, openness to experience fully mediated the link between authenticity and AUT originality. The results highlight the mediating role of openness as a mechanism that underlies the association between authenticity and creativity. Therefore, developing an authentic mindset or increasing individuals' propensity to openness could be considered possible ways to stimulate their creative potential/performance. The limitations of this study and future directions are discussed in detail.

1. Introduction

Creativity refers to the ability to generate, select, and implement ideas or solutions that are both novel and appropriate (Runco & Jaeger, 2012; Scott & Bruce, 1994; Sternberg & Lubart, 1999; Zhu, Ritter, & Dijksterhuis, 2020). Owing to its importance for promoting individual development and social progress, creativity has received considerable attention from psychological and educational researchers since the 1950s (Sternberg & Lubart, 1999). A long-standing and intriguing question for creativity researchers is, "Who is more likely to be creative?" Studies have shown that personality traits (e.g., nonconformity, proactivity, psychoticism, and schizotypy)

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are strongly related to creativity in a wide range of domains (Feist, 2019; Furnham, 2017; Li et al., 2020; Wang et al., 2017). Therefore, this study aimed to further expand the literature by focusing on authenticity, which is a rarely studied personality trait in the creativity field, to examine its association with creativity.

Authenticity refers to being aware of and acting in congruence with one's true self (Barnett & Deutsch, 2016; Wood et al., 2008). By living authentically and being self-concordant, authentic individuals usually develop elevated levels of self-esteem, relationship satisfaction, and well-being (Thomaes et al., 2017; Wood et al., 2008; Xia, Lv, & Xu, 2021), as well as lower levels of stress, aggression, anxiety, and depression (Bryan et al., 2017; Pinto et al., 2012; Theran, 2011).

Beyond its positive effect on individual well-being, the potential of authenticity to promote creativity has also been demonstrated in the workplace. Recent studies have found that authenticity can contribute to a higher level of workplace creativity, such that highly authentic employees engage in innovative work behaviors more frequently than those who score lower on this trait (Afridi et al., 2020; Montani et al., 2019). Moreover, the well-documented beneficial effect of authentic leadership on the subordinate's creative performance could serve as indirect evidence for a positive authenticity–creativity association (Cerme et al., 2013; Rego et al., 2014; Ribeiro et al., 2020). Therefore, an important next step is to examine the generalizability of the previous findings by investigating the authenticity–creativity association in a context other than the workplace and to deepen the understanding of this association by identifying the potential underlying mechanism.

Although researchers have proposed some potential ways in which authenticity may stimulate creative performance (e.g., positive affect, intrinsic motivation, and trust; Afridi et al., 2020), few studies have empirically investigated the underlying mechanism. According to the motivated cognition perspective of personality, “personality is revealed through motivated preferences and biases in the ways that people see the world and cope in the world” (Higgins & Scholer, 2008, p. 183). Prior studies have revealed that authentic people are more likely to hold an open mind (e.g., embrace ongoing experiences without denying, distorting, or exaggerating externally-based evaluative information) to see the world (Hodgins & Knee, 2002; Kernis & Goldman, 2006; Wood et al., 2008). Meanwhile, the tendency to embrace the world with openness is repeatedly documented as an important factor that nurtures the development of creative potential and breeds the generation of creative ideas/solutions (Park et al., 2014; Silvia et al., 2014). Therefore, it is highly probable that openness may form a motivated preference through which authenticity influences an individual's creativity performance. More specifically, we propose that openness may mediate the authenticity–creativity association.

The authenticity–openness link is illustrated in self-determination theory (Deci & Ryan, 2000; Ryan & Deci, 2000), self-actualization theory (Rogers, 1961), and broaden-and-build theory (Fredrickson, 2004). Specifically, self-determination theory proposes that authentic people usually act in a way that is true to themselves, and this autonomous and self-determining state allows them to be open to continually changing experiences and to be willing to assimilate these novel experiences into their self-structures (Deci & Ryan, 2000; Hodgins & Knee, 2002). In addition, the theory of self-actualization emphasizes that the structure of the self has a basic tendency to develop, strive, and actualize itself in a continually changing world of experience; as such, being open to what life offers is an attribute of the nature of the authentic self (Rogers, 1961). Furthermore, from the perspective of broaden-and-build theory (Fredrickson, 2004), the more frequent experience of positive emotions by authentic individuals (Cooper et al., 2018) can also broaden their awareness of novel experiences and encourage them to explore the various facets of life and the changing world. In sum, people with a high level of authenticity are more likely to be open to new experiences and embrace changes.

Moreover, the close association between openness and creativity is well-established (Park et al., 2014; Silvia et al., 2014). Normally, people with a higher level of openness are less conventional and more flexible, which, in turn, leads to a higher level of creativity (Egan, 2005; Park et al., 2014). In this study, we mainly focused on two typical indicators of openness: openness to experience and openness to change. Openness to experience—a construct that relates to individuals' breadth, depth, and permeability of consciousness and reflects their willingness to enlarge experience and seek novelty (DeYoung et al., 2005; McCrae & Costa, 1997, p. 826; Pervin, 2002)—may be the most well-known indicator of openness. In general, people who are open to experiences are usually inquisitive, fascinated by new things and knowledge, and are more willing to seek adventurous and unconventional ideas (DeYoung et al., 2007; DeYoung et al., 2009; McCrae, 1987). Unsurprisingly, they exhibit higher levels of creativity in diverse formats, such as divergent thinking, creative behavior, and creative achievement (Furnham et al., 2009; Hong et al., 2014; Silvia et al., 2014).

Similarly, openness to change—a less common indicator of openness that refers to an individual's willingness to embrace change—can also foster creativity (Hon et al., 2014; Park et al., 2014). Creativity, by definition, requires people to oppose traditional ways of viewing the world, deviate from the status quo, and adopt new ways of thinking to develop novel and useful ideas (Hon et al., 2014). In many cases, creativity can even stem from wild ideas that entail the very real possibility of mistakes and failure (George & Zhou, 2001). Therefore, openness to change has been found to be positively associated with creative performance in various settings (Hon et al., 2014; Park et al., 2014).

As the literature supports the existence of positively interrelated associations among authenticity, openness, and creativity (Afridi et al., 2020; Park et al., 2014; Silvia et al., 2014), the present study aimed to empirically examine these associations and the potential mediating role of openness in the authenticity–creativity association. To ensure the robustness of our findings, this study simultaneously used self-reported creative behavior and divergent thinking performance (i.e., alternative uses task, AUT) as the measures of creativity. As a subjective measure, self-reported creative behavior mainly reflects an individual's self-perception of their ability to generate and implement creative ideas/solutions (Scott & Bruce, 1994). In contrast, divergent thinking performance provides a relatively objective evaluation of an individual's creative potential (Runco & Jaeger, 2012). Recent studies have suggested that both self-report scales and divergent thinking tasks can be used as effective and reliable indicators of creativity (Kaufman, 2019; Reiter-Palmon et al., 2019).

We predicted that all the study variables (i.e., authenticity, openness to experience, openness to change, self-reported creative behavior, and divergent thinking performance) would be positively associated with each other (Hypothesis 1). Additionally, we

predicted that both openness to experience and openness to change would mediate the association between authenticity and self-reported creative behavior (Hypothesis 2) and AUT performance (Hypothesis 3). By examining openness as the potential mediator, this study sheds light on the mechanism that potentially underlies how authenticity relates to a higher level of creative performance.

2. Materials and methods

2.1. Participants

Influenced by the COVID-19 pandemic, the present study collected data via a Chinese survey website (<http://www.sojump.com>) rather than traditional paper-and-pencil survey. Specifically, we invited several teachers who worked at a normal university to post the online survey link at the end of their classes, and students were free to decide whether to participate in the survey. In total, 357 participants completed the questionnaire. Unfortunately, about 16% of the participants (57 out of 357) did not provide valid responses. Among them, 28 participants selected the same option for all items on at least one of the three scales that include reverse scored items (i.e., the authenticity, openness to change, and openness to experience scales), and 29 participants did not provide valid responses on at least one of the two divergent thinking tasks. The final sample included 300 university students aged from 17 to 30 years ($M = 20.36$, $SD = 2.26$; 11 participants did not report their age). There were 54 men and 246 women. The protocol of the study was approved by the University Committee for Human Research Protection (UCHRP) of East China Normal University.

2.2. Measures

2.2.1. Authenticity

The Authenticity Scale, which was originally developed by Wood et al. (2008), was translated into Chinese by the first and second authors, following the translation to back-translation procedure (Brislin, 1970). The scale consists of 12 items that assess three dimensions of authenticity: self-alienation (four items; e.g., "I feel alienated from myself"), authentic living (four items; e.g., "I am true to myself in most situations"), and accepting external influence (four items; e.g., "Other people influence me greatly"). In the present study, a confirmatory factor analysis showed an acceptable fit for the three first-order factors plus one second-order factor ($\chi^2/df = 2.51$; comparative fit index = 0.95; Tucker-Lewis index = 0.94; root mean square error of approximation = 0.07). All items are rated using a 7-point Likert scale that ranges from 1 ("does not describe me at all") to 7 ("describes me very well"). In the current study, we reverse-scored the self-alienation and accepting external influence items, and calculated a mean score by combining all items as an indicator for overall authenticity. Higher scores indicate that an individual is more authentic. In the current study, the Cronbach's α coefficient for this scale was 0.84.

2.2.2. Openness to experience

Openness to experience was assessed using the Chinese version of the NEO

Five-Factor Inventory-3 (Fan, et al. 2018; McCrae & Costa, 2007). The Openness subscale includes 12 items, such as "I am intrigued by the patterns I find in art and nature" and "I often enjoy playing with theories or abstract ideas." Participants respond on a 5-point Likert scale ranging from 1 = "totally disagree" to 5 = "totally agree." The mean of all the items was calculated, and higher scores indicate a higher level of openness to experience. In the present study, the Cronbach's α coefficient was 0.78.

2.2.3. Openness to change

Openness to change was evaluated using the Routine Seeking subscale of the Resistance to Change Scale that was developed by Oreg (2003). As with the Authenticity Scale, we translated this scale into Chinese following translation to back-translation procedures (Brislin, 1970). This scale includes five items, such as "I generally consider changes to be a negative thing" and "I like to do the same old things rather than try new and different ones." All items were rated using a 6-point Likert scale that ranged from 1 ("completely disagree") to 6 ("completely agree"). In the current study, we first calculated the average routine seeking scores and then reverse-scored them; higher scores indicate a higher level of openness to change. In the current study, the Cronbach's α coefficient was 0.77.

2.2.4. Creative behavior

The Creative Behavior Scale, which was originally developed by Scott and Bruce (1994) and validated for Chinese university students by Mei, Ren, Feng, Yang, & Hu, 2015, was used to assess students' creative behavior. Although this six-item scale was originally developed to determine innovativeness at work (Scott & Bruce, 1994), most of its items are general descriptions of creative behavior (e.g., generates creative ideas, develops adequate plans and schedules for the implementation of new ideas, is innovative) that do not exclusively anchor to the workplace context. Therefore, several researchers have revised this scale and validated its psychometric properties in college student samples (e.g., Li & Wu, 2011; Mei, Ren, Feng, Yang, & Hu, 2015; Su & Zhang, 2020). The participants responded on a 5-point Likert scale ranging from 1 = "totally disagree" to 5 = "totally agree." The mean of all the items was calculated, with higher scores indicating more frequent engagement in creative behavior. In the present study, the Cronbach's α coefficient was .86.

2.2.5. Divergent thinking

This study employed the widely used AUT to assess an individual's divergent thinking ability (Guilford, 1967; Reiter-Palmon et al.,

Table 1
Descriptive statistics and correlation coefficients of all the variables ($n = 300$)

	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Range	1	2	3	4	5	6	7	8
1. Gender	1.82	.39	-	-	1–2	-							
1. Age	20.36	2.26	-	-	17–30	-.03	-						
3. Authenticity	4.55	0.83	0.11	0.29	1–7	.04	.09	-					
4. Openness to experience	3.55	0.54	0.30	-0.44	1–5	-.10	.13*	.34***	-				
5. Openness to change	4.02	0.80	0.21	-0.10	1–6	-.02	.00	.44***	.39***	-			
6. Creative behavior	3.41	0.67	0.30	-0.14	1–5	-.18**	.01	.28***	.51***	.38***	-		
7. AUT fluency	4.06	1.79	1.03	1.41	1–10.5	-.08	.06	.13*	.24***	.20**	.17**	-	
8. AUT originality	2.73	2.17	1.49	2.90	0–12.5	-.05	.03	.14*	.24***	.15**	.14*	.81***	-
9. AUT flexibility	3.13	1.09	0.43	0.09	1–6.75	-.08	.03	.11 [†]	.24***	.22***	.15**	.89***	.74***

Note.

[†] $p = .06$, * $p < .05$, ** $p < .01$, *** $p < .001$. Gender: 1 = male, 2 = female. AUT = alternative uses task.

2019). In this task, participants are required to generate as many original uses as possible for two common objects (i.e., a plastic bottle and an umbrella, with 2 minutes allowed for each object) and to briefly type the answers into a text-entry box.

2.3. Procedure

This study was conducted in mid-June 2020. Once logging on our online survey website (<http://www.sojump.com>), all the participants were informed that participation in this study was completely voluntary and their personal information would be kept absolutely confidential. Meanwhile, participants were informed the possible benefits/risks and general requirements of this study, and only those who gave their online informed consent proceeded to the formal survey. After that, participants were instructed to complete the demographic questions, the Authenticity Scale, two AUT (i.e., generate alternative uses for a plastic bottle and an umbrella), the Routine Seeking Scale (i.e., a measure of openness to change), and the Openness to Experience Scale in a fixed sequence. All the items were administrated in Chinese language. In total, participants attempted 42 items in one comprehensive "log-on" to our online survey, which took about 10 minutes. After completion, participants received ¥3 (about 0.42 USD) as remuneration for their participation.

2.4. Scoring of performance on the AUT

It is widely accepted that objectivity is a desirable property when scoring a divergent thinking task (Dumas & Runco, 2018). Accordingly, this study used three objective indicators to assess AUT performance: fluency, originality, and flexibility (Hao et al., 2020; Runco, 2011; Xu et al., 2021). At the beginning, the first and the third author—both of whom had at least three years' experience in creativity assessment—reached an agreement to identify the number of valid responses (i.e., fluency) for each participant. In total, the participants ($n = 300$) generated 1368 alternative uses for a plastic bottle and 1073 alternative uses for an umbrella. Then, two raters created a comprehensive idea pool that included all the responses. Synonyms were identified and collapsed in this process. Next, two raters independently evaluated the originality and flexibility scores for each participant. For originality, responses were scored based on their statistical infrequency. Specifically, scores of 2, 1, and 0 were respectively allocated to responses generated by < 1%, 1–5%, and > 5% of all the participants. For flexibility, two raters counted the number of conceptual categories used by each participant. Excellent inter-rater correlations (ICC) were observed for the scoring of originality (for the plastic bottle, the ICC = .96; for the umbrella, the ICC = .97) and flexibility (for the plastic bottle, the ICC = .98; for the umbrella, the ICC = .95). In this study, the internal consistency reliability of the participants' performance in solving these two AUT was acceptable (for fluency, the Cronbach's $\alpha = .74$; for originality, the Cronbach's $\alpha = .67$; for flexibility, the Cronbach's $\alpha = .62$). Therefore, for ease of interpretation, we created an aggregated fluency, originality, and flexibility score for each participant, with higher scores indicating a higher level of divergent thinking performance.

3. Results

3.1. Preliminary analyses

Table 1 presents the means, standard deviations, skewness, kurtosis, range, and Pearson's correlations of all the variables of interest. As shown in this table, all the absolute values of the skewness and kurtosis scores are smaller than 3 and 8, respectively. Therefore, the data can be considered as normally distributed (Kline, 2016, p.76). As expected, authenticity was positively associated with self-reported creative behavior, AUT fluency, AUT originality, and AUT flexibility. In addition, both openness to experience and openness to change were positively related to authenticity and all the aforementioned creativity indicators. Furthermore, a gender difference existed in self-reported creative behavior, with men scoring significantly higher than women.

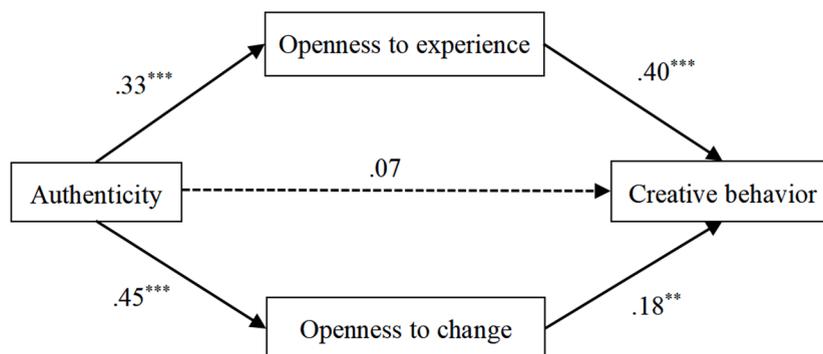


Fig. 1. Mediation effect of openness to experience and openness to change on the association between authenticity and creative behavior when controlling for gender and age. The path coefficients were standardized. The dashed pathway is not significant. ** $p < .01$, *** $p < .001$.

3.2. Test of mediation

In this study, multicollinearity seemed not to be a serious problem (e.g., the variance inflation factor ranged from 1.23 to 1.35); thus, we proceeded with a path analysis of all the variables. Specifically, the SPSS macro *MEDIATE* (Hayes & Preacher, 2014) was used to examine the parallel mediating effect of openness to experience and openness to change on the authenticity–creativity association. Both gender and age were controlled for to avoid their confounding influence on the indirect effect analysis.

The results showed that both openness to experience and openness to change fully mediated the relationship between authenticity and creative behavior (see Fig. 1), AUT fluency (see Fig. 2), and AUT flexibility (Fig. 4). In addition, openness to experience fully mediated the association between authenticity and AUT originality, but openness to change was not a significant mediator for this association (see Fig. 3). Table 2 presents the details regarding the indirect effects and 95% bias-corrected bootstrapped confidence intervals (CIs) of the mediation analyses when controlling for gender and age. If the CI does not include zero, then we can conclude that the indirect effect is significant.

4. Discussion

Although it is theoretically reasonable to expect a positive association between authenticity and creativity (Kernis & Goldman, 2006), few empirical studies have focused on this research topic (Afridi et al., 2020; Montani et al., 2019) and even fewer have examined the underlying mechanism. To fill this gap, the present study examined the authenticity–creativity association in a college sample and tested whether openness (i.e., openness to experience and to change) could mediate this association. As expected, authenticity was positively associated with self-reported creative behavior and divergent thinking performance. In addition, both openness to experience and openness to change fully mediated the association between authenticity and creative behavior/performance.

Consistent with Hypothesis 1, authenticity was positively related to self-reported creative behavior and divergent thinking performance. These findings are in line with those of previous studies that showed that authenticity can promote creative performance in the workplace (Afridi et al., 2020; Montani et al., 2019). Additionally, the findings further generalize this relationship to multiple indicators of creativity (i.e., self-reported creative behavior, AUT fluency, AUT originality, and AUT flexibility) outside of a workplace context (i.e., in a college sample). Theoretically, the dual-pathway model of creativity (Nijstad et al., 2010) can elucidate this positive association. According to this model, authenticity may facilitate creative performance either through the flexibility path or through the persistence path. On the one hand, authentic individuals are usually more willing to share their ideas freely (Kernis & Goldman, 2006) and are less restricted by external opinions and conventional values (Wood et al., 2008), which makes them more flexible in the scope of idea generation. On the other hand, authentic individuals are usually intrinsically motivated (Van den Bosch & Taris, 2018) and highly engaged (Reis et al., 2016); thus, they can focus on the task at hand more persistently. Collectively, authenticity can lead individuals to expand their scope of idea generation or fuel the persistence of idea exploration, which, in turn, further contributes to the generation of more original and appropriate ideas.

In this study, authenticity had a stronger association with self-reported creative behavior than with divergent thinking performance (see Table 1). This difference may result from the common method bias (Podsakoff et al., 2003), given that similar response dispositions in the self-report measures (i.e., authenticity and creative behavior) may have artificially increased their correlation to a magnitude that is larger than the actual level. In accordance with our findings, prior studies (e.g., Xu et al., 2019) have also shown that personality was more strongly associated with creativity when the latter was assessed using subjective measures (e.g., self-reported creative behavior and creative personality) than when it was evaluated using objective tasks (e.g., divergent thinking and creative product design). Therefore, it is important to include objective measures rather than purely subjective self-report on creativity. However, notwithstanding the difference in the correlation magnitude, authenticity was still positively and significantly associated with both a subjective measure of creativity (i.e., self-reported creative behavior) and objective performance in a creative task (i.e.,

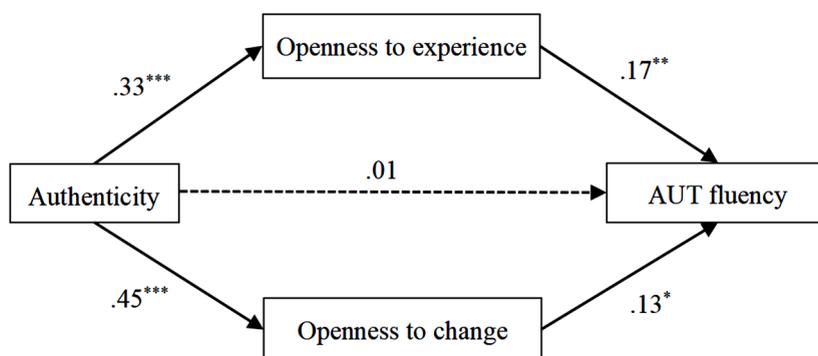


Fig. 2. Mediation effect of openness to experience and openness to change on the association between authenticity and AUT fluency when controlling for gender and age. The path coefficients were standardized. AUT = alternative uses task. The dashed pathway is not significant. * $p < .05$, ** $p < .01$, *** $p < .001$.

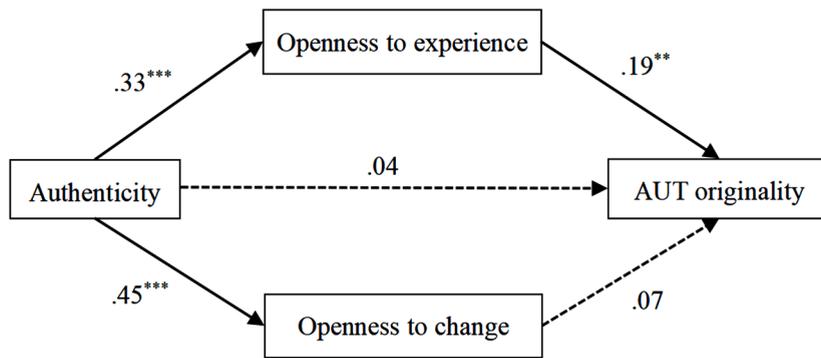


Fig. 3. Mediation effect of openness to experience and openness to change on the association between authenticity and AUT originality when controlling for gender and age. The path coefficients were standardized. AUT = alternative uses task. The dashed pathway is not significant. ** $p < .05$, *** $p < .001$.

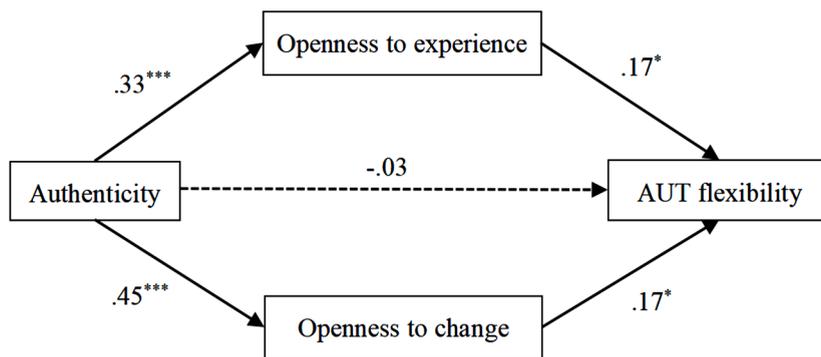


Fig. 4. Mediation effect of openness to experience and openness to change on the association between authenticity and AUT flexibility when controlling for gender and age. The path coefficients were standardized. AUT = alternative uses task. The dashed pathway is not significant. * $p < .05$, *** $p < .001$.

Table 2

Indirect effects and confidence intervals (CIs) of the mediation analyses when controlling for gender and age

Indirect pathways	Effect value	SE	95% CI	
			Lower	Upper
Authenticity–openness to experience–creative behavior	.13 ^a	.04	.07	.21
Authenticity–openness to change–creative behavior	.08 ^a	.03	.03	.15
Authenticity–openness to experience–AUT fluency	.06 ^a	.02	.02	.11
Authenticity–openness to change–AUT fluency	.06 ^a	.03	.01	.12
Authenticity–openness to experience–AUT originality	.06 ^a	.02	.02	.12
Authenticity–openness to change–AUT originality	.03	.03	-.02	.09
Authenticity–openness to experience–AUT flexibility	.06 ^a	.02	.02	.11
Authenticity–openness to change–AUT flexibility	.08 ^a	.03	.02	.14

Note.

^a 95% CI does not overlap with zero.

AUT fluency, AUT originality, and AUT flexibility), which indicates that the positive authenticity–creativity association is quite robust.

In line with our hypotheses, the results revealed that both openness to experience and openness to change fully mediated the relationship between authenticity and self-reported creative behavior (Hypothesis 2), AUT fluency (Hypothesis 3), and AUT flexibility (Hypothesis 3). Taken together, our results demonstrate that, although openness to experience and openness to change capture different facets of openness, they exert a similar effect on mediating the association between authenticity and most indicators of creativity (both subjective and objective), thus lending us solid evidence that openness can mediate the authenticity–creativity linkage. In other words, living the true self can contribute to an individual’s creativity performance through opening their mind to embrace the ever-changing circumstances.

Our findings provide empirical support for the applicability of self-determination theory (Deci & Ryan, 2000; Ryan & Deci, 2000) and self-actualization theory (Rogers, 1961) when explaining the effect of authenticity on creativity. Specifically, during the process of

pursuing self-determination and self-actualization, authentic people usually tend to be open to the continually changing world of experience (Rogers, 1961), and they actively incorporate these novel experiences into the construct of the self (Hodgins & Knee, 2002). Our findings are also in line with broaden-and-build theory (Fredrickson, 2004), given that the more frequent experience of positive affect by authentic people (Cooper et al., 2018) can broaden their awareness of novel experiences and encourage exploration of the changing world. By being open to ever-changing circumstances, authentic people can accumulate diversified knowledge from various domains and oppose traditional ways of viewing the world, which, in turn, can help them to adopt new ways of thinking to develop novel and useful ideas (Hon et al., 2014; Xu & Pang, 2020).

Notably, we only identified the mediating role of openness to experience but not that of openness to change in the association between authenticity and AUT originality (see Fig. 3). This indicates that, although both openness to experience and openness to change were related to a more fluent (i.e., fluency) and flexible (i.e., flexibility) mindset during AUT problem solving, the former played a more influential role in stimulating original/uncommon ideas (i.e., originality). Relatedly, openness to experience had a stronger association with self-reported creative behavior than openness to change (see Table 1). The reason for these differences may be that openness to change is a relatively general indicator of openness that has the potential to expand the breadth or flexibility of idea generation, but it does not directly relate to the ability to generate original/uncommon ideas or the tendency to engage in creative behavior (Park et al., 2014). In contrast, openness to experience is more specifically anchored to diversified knowledge and experience, which directly fuels the generation of original/uncommon ideas and the development of creative behavior (Xu & Pang, 2020). Therefore, the overlap between openness to experience and AUT originality and creative behavior may be greater than the latter's overlap with openness to change; as such, it causes the aforementioned differences in the mediating effect and correlational magnitude.

There are some limitations of this study that deserve mentioning. First, about 16% of the participants (57 out of 357) did not provide valid responses owing to various possible reasons (e.g., low intrinsic respondent interest, inability to understand the instructions fully, distraction caused by environmental factors). Future research should employ effective strategies (e.g., provide clear instructions, representative examples, and practice opportunities; control the length of the questionnaire and use shorter scales if available; and remind participants to complete the questionnaire in a quiet environment so that they will not be distracted) to increase the quality of data collection (Meade & Craig, 2012; Zhong et al., 2021). Second, although we controlled for gender to avoid its confounding influence on the indirect effect analysis, the unbalanced gender distribution (i.e., male participants constituted only 21% of the sample) is a limitation. Therefore, we encourage the recruitment and inclusion of more gender balanced samples in future studies to examine the robustness of our findings. Third, the cross-sectional nature of the study makes it difficult to infer the direction of causality. Future studies could use experimental techniques (e.g., manipulating an individual's authentic state) and a longitudinal design (e.g., collecting multiple wave data) to confirm the causality of our findings. Fourth, as the current study only examined the mediating role of openness in the authenticity–creativity association, future studies should further explore other possible mediators (e.g., hope, optimism, and positive affect) to understand the underlying mechanism more comprehensively. Fifth, the results are limited in their generalizability because the participants in our study were all university students in China. Future research that includes more diverse and heterogeneous samples is encouraged.

Despite the above limitations, our findings provide the valuable insight that openness can mediate the relationship between authenticity and creative behavior/performance. Therefore, developing an authentic mindset (e.g., Gan et al., 2018) could be considered a possible way to stimulate individuals' creative potential. In addition, interventions that aim to increase individuals' propensity to openness (e.g., Stieger et al., 2020) could also be utilized to promote their creative output.

Author statement

Xiaobo Xu: Conceptualization, Methodology, Investigation, Formal analysis, Writing- Original draft preparation. **Mengya Xia:** Conceptualization, Methodology, Formal analysis, Writing-Original draft preparation. **Jingwen Zhao:** Investigation, Formal analysis. **Weiguo Pang:** Conceptualization, Methodology, Writing-Reviewing and Editing, Funding acquisition.

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Ethical approval

The protocol of the study was approved by the University Committee on Human Research Protection (UCHRP) of East China Normal University. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

Informed consent was obtained from all individual participants included in the study.

Data statement

Data is only available upon reasonable request.

Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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