Short Communication

Belief in stable and fleeting luck and achievement motivation

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ARTICLE INFO

ABSTRACT

The current work seeks to understand the relationship between luck beliefs and achievement motivation. We hypothesized and found evidence that belief in stable rather than fleeting luck positively relates to achievement motivation (Study 1). Furthermore, belief in stable luck affects achievement motivation via personal agency beliefs (Study 2). These findings add to our understanding of the causal beliefs associated with a sense of mastery and preference for challenging tasks.

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1. Introduction

Achievement motivation is the desire for accomplishment and mastery of skills (Atkinson, 1957; McClelland, Atkinson, Clark, & Lowell, 1953; Murray, 1938). In trying to understand the drivers of achievement motivation, researchers have long focused on locus of control, the perceived contingency between one's actions and outcomes (Rotter, 1966). According to this construct, an internal locus of control indicates a belief that one's actions directly affect one's outcomes. Internal locus of control is, thus, thought to positively predict achievement motivation, whereas external locus of control is thought to negatively predict achievement motivation. However, external locus of control encompasses a number of disparate attributions, such as task difficulty, chance, and supernatural agency such as luck or fate. And even the concept of luck is not a single belief per se, but it is in fact a word that encompasses several folk conceptions. For example, luck beliefs were originally categorized as attributions to unstable and thus uncontrollable forces (Heider, 1958; Weiner, 1974), but recent theorists (Karasawa, Little, Miyashita, Mashima, & Azuma, 1997) differentiated between luck beliefs that posit a somewhat stable force versus an unstable, fleeting force. Individuals may endorse one type of luck belief and not the other. The current research focuses on the possibility that the belief in luck as a somewhat stable force fosters achievement motivation, such that those who believe in this type of luck may have higher achievement motivation than those who believe in it as unstable.

Although belief in luck is traditionally thought of to be part of external locus of control, it may be positively related to achievement motivation through personal agency. Indeed, Young, Morris, Burrus, Krishnan, and Regmi (2008) found that attributions to supernatural agency are not incompatible with a sense of indirect personal control. And cross cultural studies (Leung & Bond, 2004) show that, across the countries of the world, objective measures of academic achievement in high school are correlated positively with the degree to which there is cultural belief in "Fate Control" (Zhou & Leung, 2008), the belief that there are supernatural agencies that one can work with to control outcomes. The current research investigates whether belief in luck, a type of fate control, fosters personal agency and thus achievement motivation.

We hypothesize that stable but not fleeting belief in luck is positively related to achievement motivation (Hypothesis 1), and that personal agency beliefs are an important means through which stable luck beliefs predict achievement motivation (Hypothesis 2). If people regard luck as a "somewhat stable force that tends to influence events in their own favor" (Darke & Freedman, 1997), luck is treated as a deployable personal force and can enhance the feeling of personal agency (Wohl & Enzle, 2002). This type of belief in luck thus motivates achievement behavior (Weiner, 1986). In contrast, if luck is perceived as fleeting and difficult to be capitalized on, personal agency is not enhanced and therefore cannot be counted on when striving for success.

2. Study 1

2.1. Method

2.1.1. Participants and procedure

The sample consisted of 185 students from a west-coast public university (84 males, 135 females, and one who did not report sex).

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Table 1
Means, standard deviations, correlations, and reliabilities of Study 1 variables.

Variables	M	SD	1	2	3	4	5
1. Age	22.7	7.38	1				
2. Religiosity	3.11	1.89	−0.05	1			
3. Belief in stable luck	3.59	0.75	0.25**	−0.09	(0.82)		
4. Belief in fleeting luck	3.85	0.78	0.02	0.07	0.42**	(0.65)	
5. Achievement motivation	3.94	0.55	−0.07	0.05	0.24**	0.16*	(0.58)

Note: $N = 185$. Internal reliabilities are in parentheses.
 * $p < 0.05$.
 ** $p < 0.01$.

Participants' average age was 22.7 years old (SD = 7.38). The sample was primarily Caucasian (55) and Asian (110), with smaller numbers of Hispanic (6), African-American (5), and American Indian (5) participants. Ninety-one of the participants in the sample were social science majors, while 85 were natural science majors. Exact sample size varied slightly across analyses due to missing data for some respondents.

Participants were recruited by an email list served for participants in behavioral studies. Participants who signed up received a link to the online studies entitled "Social Attitudes Questionnaire." The study was described as a survey of social attitudes and contained items assessing participants' views on some philosophical and practical issues. Participants were instructed to complete a battery of self-reported items and rate the extent to which they agreed with each statement on a 6-point scale (see Appendix A). Participants received $4 payment for their participation in the study.

2.1.2. Measures

We used the eight-item mastery subscale of Spence and Helmreich's (1983) work and family orientation scale to measure achievement-related motivation. Sample items included: "Once I undertake a task, I persist" and "I prefer to work in situations that require a high level of skill," where 1 = definitely disagree and 6 = definitely agree. The eight-items were averaged to form an overall measure ($\alpha = 0.58$).[1]

The nine-item belief in good luck scale ($\alpha = 0.82$) (Darke & Freedman, 1997) was used to measure the stable belief in luck. Sample items included: "I consider myself to be a lucky person" and "Luck works in my favor". Participants were asked nine questions regarding their opinions about trait-like luck belief, where 1 = definitely disagree and 6 = definitely agree.

Oner-Ozkan's (2003) four-item scale ($\alpha = 0.65$) was used to measure the belief in fleeting luck. Sample items included: "I believe that bad times will be followed by good times" and "Rather than following a stable pattern, luck follows a path of ups and downs".

Age, gender, major, and religiosity were included as control variables. Research has shown that people in arts, humanities, and education fields are more likely to have luck beliefs than in other academic fields (Vyse, 1997). Our subjects are sampled from a large public university. Student subjects are from all kinds of disciplines, including those three fields. Hence, we include "major" as a demographic control variable in this study. Similarly, religiosity, which refers to the frequency of religious practices and the strength of the religious beliefs behind them, has been found to correlate with belief in luck and related behaviors in many studies (Beck & Miller, 2001; MacDonald, 1995). Therefore, we included religiosity as another demographic control variable in this study.

2.2. Results and discussion

Means, standard deviations, and correlations for all the continuous variables are shown in Table 1. We conducted a confirmatory factor analysis to check for common method variance among the perceptual variables in our study: belief in stable luck, belief in fleeting luck, and achievement motivation. The result showed that the three-factor model had a significantly better fit with the data than the one-factor model, indicating the absence of severe common method variance ($\chi^2 = 367.95$, $df = 3$, $p < 0.001$).

We examined the effects of the two forms of belief in luck on achievement motivation using hierarchical regression analysis. First, the control variables (age, gender, ethnicity, major, and religiosity) were entered into the model. Then, the two forms of belief in luck were entered. The results of the regression are presented in Table 2. As expected, belief in stable luck was positively related to achievement motivation ($\beta = 0.23$, $t = 2.65$, $p < 0.01$) but belief in fleeting luck was not ($\beta = 0.06$, $t = 0.64$, $p = 0.53$).

The results of Study 1 are consistent with our hypothesis that only belief in stable luck positively relates to achievement motivation, and belief in fleeting luck does not. What is the means by which stable luck leads to desire for mastery and achievement? We argue that belief in stable luck affords individuals with a sense of personal agency and thus boosts achievement motivation. We test this hypothesis in Study 2.

Table 2
Relative impact of belief in stable luck and belief in fleeting luck on achievement motivation (Study 1).

Predictor variables	Achievement motivation	
	β	t
Age	−0.21	−2.62*
Gender[a]	−0.02	−0.21
Ethnicity		
American Indian	0.00	0.01
African American	−0.02	−0.13
Asian	0.33	1.23
Caucasian	0.14	1.10
Latino	0.25	0.90
Major[b]	0.07	0.85
Religiosity	0.00	−0.04
Belief in stable luck	0.23	2.65**
Belief in fleeting luck	0.06	0.64
R^2	0.13	
Adjusted R^2	0.07	
$F (11, 174)$	2.14*	

Note: $N = 185$.
 [a] Male = 1; Female = 2.
 [b] Natural Science = 1; Social Science = 2.
 * $p < 0.05$.
 ** $p < 0.01$.

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[1] Although low, the reliability of the measure in the current sample was almost identical to those reported in previous studies.

Table 3
Means, standard deviations, correlations, and reliabilities of Study 2 variables.

Variables	M	SD	1	2	3	4	5	6
1. Age	20.94	2.84	1					
2. Religiosity	3.42	1.94	−0.12[*]	1				
3. Belief in stable luck	3.31	0.94	0.01	−0.26[**]	(0.85)			
4. Belief in fleeting luck	3.45	1.06	−0.04	−0.18[*]	0.46[**]	(0.68)		
5. Personal Agency Beliefs	3.96	1.06	0.06	−0.09	0.18[**]	0.15[**]	(0.59)	
6. Achievement motivation	3.98	0.64	0.07	−0.06	0.15[**]	0.04	0.17[**]	(.58)

Note: N = 368. Internal reliabilities are in parentheses.
[*] $p < 0.05$.
[**] $p < 0.01$.

3. Study 2

3.1. Method

3.1.1. Participants and procedure

The sample consisted of 368 students from a west-coast public university (117 males and 251 females). Participants' average age was 20.9 years old (SD = 2.84). The sample was primarily Caucasian (80) and Asian (245), with smaller numbers of Hispanic (23), African-American (12), and American Indian (4) participants. 234 of the participants in the sample were social science majors, and 113 were natural science majors. Like in Study 1, exact sample size varied slightly across analyses due to missing data for some respondents.

The 10-min survey was part of a packet of surveys on behavioral decision making. Participants were instructed to complete a battery of self-reported items and rate the extent to which they agreed with each statement on a 6-point scale (see Appendix A). Participants received cash payment for their participation.

3.1.2. Measures

Like in Study 1, the eight-item Spence–Helmreich mastery scale (Spence & Helmreich, 1983) was used to measure achievement-related motivations ($\alpha = 0.59$). As in Study 1, the nine-item belief in good luck scale (Darke & Freedman, 1997) was used to measure the belief in stable luck ($\alpha = 0.85$) and Oner-Ozkan's four-item (2003) scale was used to measure the belief in fleeting luck ($\alpha = 0.68$). Two-items were used to measure personal agency beliefs: "In my society, individuals take control of the situations around them and exercise free will," and "Individuals set a course for themselves independent of the influences surrounding them" ($\alpha = 0.59$). These items are adapted from Menon, Morris, Chiu, and Hong (1999) measurement of individual autonomy. Participants were asked about the extent to which they agreed with each statement on a 6-point scale, ranging from 1 (definitely disagree) to 6 (definitely agree). Age, gender, major, and religiosity were included as control variables.

3.2. Results and discussion

Means, standard deviations, and correlations for all the continuous variables were shown in Table 3. We conducted a confirmatory factor analysis to check for common method variance among the perceptual variables in this study: belief in stable luck, belief in fleeting luck, personal agency beliefs, and achievement motivation. The result showed that the four-factor model had a significantly better fit with the data than the one-factor model, indicating the absence of severe common method variance ($\chi^2 = 198.93$, $df = 6$, $p < 0.001$).

We replicated the effects of the two forms of belief in luck on achievement motivation. The results of the regression are

Table 4
Relative impact of belief in stable luck and belief in fleeting luck on achievement motivation (Study 2).

Predictor variables	Achievement motivation	
	β	t
Age	0.09	1.67
Gender[a]	−0.03	−0.52
Ethnicity		
American Indian	0.01	0.18
African American	0.05	0.87
Asian	0.37	2.71[**]
Caucasian	0.28	2.24[*]
Latino	0.18	2.10[*]
Major[b]	0.08	1.47
Religiosity	0.00	0.02
Belief in stable luck	0.17	2.72[**]
Belief in fleeting luck	0.01	0.07
R^2	0.07	
Adjusted R^2	0.04	
F (11,343)	2.25[*]	

Note: N = 368.
[a] Male = 1; Female = 2.
[b] Natural Science = 1; Social Science = 2.
[*] $p < 0.05$.
[**] $p < 0.01$.

presented in Table 4. Like in Study 1, belief in stable luck was positively related to achievement motivation ($\beta = 0.17$, $t = 2.72$, $p < 0.01$), but belief in fleeting luck was not ($\beta = 0.01$, $t = 0.07$, $p = 0.94$).

We examined the mediating effect of personal agency beliefs on the relationship between belief in stable luck and achievement motivation by using the three regression equations. The results reported here control for age, gender, major, and religiosity, but they hold when none are controlled for as well. The results showed that belief in stable luck was significantly positively related to personal agency beliefs ($\beta = 0.18$, $p < 0.01$); and belief in stable luck was significantly positively related to achievement motivation ($\beta = 0.17$, $p < 0.01$). When belief in stable luck and personal agency beliefs were both entered together in the regression equation to predict achievement motivation, the coefficient of belief in stable luck was reduced ($\beta = 0.14$, $p < 0.05$). A Sobel test indicated that this reduction was significant, $z = 2.30$ ($p < 0.05$). Therefore, the conditions for a partial mediation model were met (Baron & Kenny, 1986), thereby supporting the second hypothesis.

The results replicated the finding of Study 1 in that belief in stable luck positively related to achievement motivation. In addition, we found that personal agency beliefs partially mediated the relationship between stable luck belief and achievement motivation.

4. General discussion

Both Study 1 and 2 show that belief in stable luck does relate to people's desire for challenge and effort in the face of difficulties—a

key characteristic of achievement motivation (McClelland, 1961). These findings suggest belief in stable luck is more effective than belief in fleeting luck in promoting the mastery aspect of achievement motivation.

The current research extends prior theory in attributions and achievement motivation. Original theorizing classified luck as an external, unstable, and uncontrollable cause of an event (Heider, 1958; Weiner, 1986). Because of its uncontrollability, attributing success to luck was thought to negatively relate to or have no relationship with achievement motivation (Weiner, 1986). Later, Darke and Freedman (1997) provided empirical evidence that some people regard luck as a "somewhat stable force that tends to influence events in their own favor" (Darke & Freedman, 1997). If *luck* can be thought of as a deployable personal skill, belief in luck should motivate achievement behavior, and indeed this is what we have found. Belief in stable luck enhances a feeling of personal agency and thus positively relates to achievement motivation. In contrast, belief in fleeting luck does not enhance a sense of personal agency and has no relationship with achievement motivation.

It is notable that our finding is not consistent with Darke and Freedman (1997) prior finding that belief in stable luck was not correlated with achievement motivation. We believe that this is because we used different items to represent achievement motivation from theirs. Darke and Freedman (1997) used the 19-item Spence and Helmreich's (1983) Work and family orientation scale to measure and represent achievement motivation. The scale consists of three subscales—work orientation, competitiveness, and mastery. The work orientation subscale measures the capacity to experience pleasure in work and in the successful completion of tasks. The competitiveness subscale measures the desire to outperform others. The mastery subscale measures a preference for difficult and challenging tasks. The feeling of personal agency resulting from belief in stable luck can promote preference for challenging tasks (mastery subscale). However, personal agency may be less likely to increase the pleasure or satisfaction of completing a job (measured by the work orientation scale), or improving the feeling of interpersonal competency (measured by the competitiveness subscale). In sum, it may be because they operationalized achievement motivation with such wide ranging measures of work and family attitudes that the correlation between luck belief and achievement motivation in Darke and Freedman's (1997) study is not significant.

4.1. Limitations and future directions

The current results do not lend themselves to drawing causal conclusions, because we did not manipulate luck beliefs directly. Our studies show that belief in stable luck is associated with belief in personal agency and a desire to persist at difficult tasks. Future research might benefit from experimentally investigating the causal relationship among luck and personal agency beliefs and achievement motivation. Future research may also measure achievement motivation behaviorally, such as observing individuals' persistence at math problems or unsolvable puzzles.

5. Conclusion

The current research further encourages us to distinguish between belief in stable luck and belief in fleeting luck, as they are differentially associated with the drive to choose challenging tasks and persist at them. Belief in stable luck is associated with personal agency beliefs and achievement motivation, whereas belief in stable luck is not.

Appendix A

Variables used to in this study

I. Belief in stable luck
1 I consistently have good luck.
2 Luck works in my favor.
3 I consider myself to be a lucky person.
4 Even the things in life I cannot control tend to go my way because I am lucky.
5 I often feel like it is my lucky day.
6 There is such a thing as luck that favors some people but not others.
7 I believe in luck.
8 Luck plays an important part in everyone's life.
9 Some people are consistently lucky and others are unlucky.

II. Belief in fleeting luck
10 Although luck is not something constant throughout one's life, it follows a certain orderly path.
11 I feel that after successive good occurrences, there will be some unlucky breaks.
12 Rather than following a stable pattern, luck follows a path of ups and downs.
13 I believe that bad times will be followed by good times.

III. Achievement motivation
14 I would rather do something at which I feel confident and relaxed than something which is challenging and difficult.
15 When a group I belong to plans an activity, I would rather direct it myself than just help out and have someone else organize it.
16 I would rather learn easy, fun games than difficult, thought games.
17 If I am not good at something, I would rather keep struggling to master it than move on to something I may be good at.
18 Once I undertake a task, I persist.
19 I prefer to work in situations that require a high level of skill.
20 I more often attempt tasks that I am not sure I can do than tasks that I believe I can do.
21 I like to be busy all the time.

IV. Personal agency beliefs
22 In my society, individuals take control of the situations around them and exercise free will.
23 Individuals set a course for themselves independent of the influences surrounding them.

V. Demographics
24 Age
25 Gender
26 Ethnicity
26 Major
27 Religiosity

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