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IMPLICIT ASSOCIATION BETWEEN AUTHENTIC PRIDE AND PRESTIGE COMPARED TO HUBRISTIC PRIDE AND DOMINANCE^{1,2}

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Summary.—Tracy and Robins proposed that pride has authentic and hubristic facets. Cheng, Tracy, and Henrich reported these two facets were based on prestige and dominance, respectively. Nine experiments were conducted in the current study to examine the implicit associations between words related to authentic and hubristic pride and those related to prestige and dominance. Implicit language association between authentic pride and high prestige status was strong, but that between hubristic pride and high dominance status was weak, suggesting that the authentic pride words might automatically convey a strong signal of high prestige status, whereas hubristic pride words might convey a weak signal of high dominance status.

Pride is a positive, self-conscious emotion resulting from victories and achievements that may be attributed to abilities or efforts (Tangney & Wagner, 1995; Tracy & Robins, 2007a). Several researchers have provided theoretical arguments and empirical evidence for the bifurcation of pride into authentic and hubristic facets (Tangney & Wagner, 1995; Lewis, 2000; Tracy & Robins, 2007a, 2007b; Tracy, Cheng, Robins, & Trzesniewski, 2009; Tracy, Robins, & Cheng, 2010; but see Williams and DeSteno, 2010, for a dissenting view). According to Tracy and Robins (2007b), authentic pride is based on a specified successful event and its attributions are internal, unstable, and controllable; in contrast, hubristic pride results from a non-specific, holistic, and positive view of oneself, and its causal attributions are internal, stable, and uncontrollable. Authentic pride has been associated with positive behavioral patterns, such as pro-sociality, agreeableness, successful social relationships, and good mental health, whereas hubristic

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pride has been associated with negative behavioral patterns such as narcissistic personality disorder, disagreeableness, antisocial behaviors, poor interpersonal relationships, and poor mental health (Tracy, *et al.*, 2009; Cheng, Tracy, & Henrich, 2010).

Recently, Cheng, *et al.* (2010) reported the authentic and hubristic facets of pride corresponded to two routes to high social status, namely, prestige and dominance. As described by Henrich and Gil-White (2001), individuals of high prestige obtain high social status by relying on their own knowledge and skills. They also teach their subordinates skills and knowledge. In return, the subordinates are willing to provide resources to their high prestige leaders. Individuals of high dominance, however, obtain high social status by using intimidation or coercion. They often threaten their subordinates and take their resources by force. The subordinates usually submit to such leaders out of fear. This distinction between prestige and dominance has recently gained further empirical support (Johnson, Burk, & Kirkpatrick, 2007; Snyder, Kirkpatrick, & Barrett, 2008).

Although Cheng, *et al.*'s (2010) study described a distinction between authentic and hubristic pride and linked them with prestige and dominance, respectively, their study was based solely on survey data, *i.e.*, self-reports and peer-reports, that could elicit socially desirable responses. An alternative and complementary approach would be to use an Implicit Association Test (IAT) to examine the associations between the two facets of pride and the two forms of status mentioned above. Shariff and Tracy (2009) used the IAT to investigate the implicit association between pride and status, but they did not differentiate between authentic and hubristic pride in that study.

Current Research

In the present research, four methods were used: (a) IAT (Greenwald, McGhee, & Schwartz, 1998), (b) the single-attribute IAT (Wigboldus, Holland, & van Knippenberg, 2005), (c) the single-target IAT (Penke, Eichstaedt, & Asendorpf, 2006), and (d) the affect misattribution procedure (AMP; Payne, Cheng, Govorun, & Stewart, 2005).³ In Experiments 1 and 2, the standard IAT was used to assess the implicit associations between the two facets of pride and the two routes to high status. The results of the standard IAT were informative, but limited to showing only relative strength of the various implicit associations (Nosek, Greenwald, & Banaji, 2005). To target the specific associations of interest, three experiments were conducted (Exps. 3a, 3b, and 4) using the single-target IAT (Penke, *et al.*, 2006; Bluemke & Friese, 2008) and two experiments were conducted

³The (SC-)IATAMP can be considered to be automatic, with lack of intention and control (Shariff & Tracy, 2009). The participants in AMP are unaware of the influence of the primes on the judgments of targets. To some extent, these characteristics of tasks meet mainly criteria of automaticity (Bargh, 1994).

(Exps. 3c and 3d) using the single-attribute IAT (Penke, *et al.*, 2006). To supplement the results from the IAT experiments, which may have been confounded by individual differences in executive control processes (Blanton, Jaccard, Klick, Mellers, Mitchell, & Tetlock, 2009), two experiments were conducted (Exps. 5a and 5b) using the standard AMP, which is not confounded by individual differences in executive control (Payne, *et al.*, 2005).

Such research was undertaken to extend previous findings in three ways. Firstly, to examine whether the two facets of pride have implicit or automatic associations with two distinct forms of high status and whether the strength of association between authentic pride and prestige status is the same as that between hubristic pride and dominance status. As mentioned earlier, in only one recent study (Shariff & Tracy, 2009) the implicit association between pride and status was examined without distinguishing between authentic and hubristic pride or between dominance and prestige. Secondly, this represents the first test of whether the pattern of association between pride and status is dependent on specific stimulus materials (high status words and high status protagonists). The concepts of pride and status could be represented with either words or story characters. If the behavioral pattern is consistent and replicable across different stimuli and methods of measurement, the conclusions about a relation between pride and status would be considered robust. Thirdly, this is the first evaluation of implicit semantic associations between words expressing pride and high status words using both the IAT and AMP. The standard IAT is a popular measure of implicit attitudes, self-esteem, and self-concept (Greenwald, *et al.*, 1998; Greenwald & Farnham, 2000; Greenwald, Poehlman, Uhlmann, & Banaji, 2009). However, this method is often confounded by individual differences in executive control (Payne, 2005; Blanton, *et al.*, 2009; Klauer, Schmitz, Teige-Mocigemba, & Voss, 2010). AMP is not affected by individual differences in executive control and is therefore an appropriate complement of the IAT (Shariff & Tracy, 2009).

EXPERIMENT 1

Experiment 1 was conducted to investigate whether two compatible implicit associations (between authentic pride words and high prestige status words and between hubristic pride words and high dominance status words) are stronger than two incompatible implicit associations (between authentic pride words and high dominance status words and between hubristic pride words and high prestige status words). The standard IAT could assess relative strengths of these four associations. If reaction times for the compatible pairs are faster than those for the incompatible pairs, the implicit associations would be stronger for the compatible pairs than for the incompatible pairs.

METHOD

Participants and Procedure

In exchange for payment, 29 college students were recruited to participate in this study. Two participants' data were discarded for having error rates in excess of 20% (Greenwald & Farnham, 2000). There remained 27 participants (13 men, 14 women). Mean age was 23.3 yr. ($SD = 2.4$). Informed consents were obtained before the experiment. Institutional ethics approval was deemed not necessary for this study design.

Participants completed a standard IAT that included five steps. In the first step (Block 1 or B1), participants judged the category of the concept words, namely, whether they were words indicating high dominance status or high prestige status (see the next section for the actual stimuli). Each item appeared at the center of the computer screen until the participant responded and the inter-stimulus interval was 250 msec. Participants pressed one of two keys with the left or the right forefinger to respond. In the second step (B2), participants performed the same task as in the first step except that they judged the words indicated authentic or hubristic pride. We introduced the difference between authentic pride and hubristic pride by presenting examples (such as "confident" and "stuck-up"). In the third step (B3 and B4), the two categorization tasks were combined: one key was mapped to two categories (high dominance status words and hubristic pride words) and the other key to the other two categories (high prestige status words and authentic pride words). This step included 20 practice trials (B3) and 40 experimental trials (B4). In the fourth step (B5), participants performed the same task as that in the second step, but the key assignments were reversed. The fifth step (B6 and B7) was similar to the third step, except that the pairing of categories for the keys was changed (one key for high dominance status words and authentic pride words and the other key for high prestige status words and hubristic pride words). This step also included a practice block with 20 trials (B6) and an experimental block of 40 trials (B7). The order of these blocks was counterbalanced between participants. For all trials, participants were asked to respond as quickly and accurately as possible.

Stimuli

The seven Chinese words related to authentic pride and seven Chinese words related to hubristic pride were used in this study (Table 1). These words are the closest terms to those used in the authentic and hubristic pride scales developed by Tracy and Robins (2007b). The five high dominance words and five high prestige words were used (Table 1). All these words were selected from a larger group of 14 synonyms for high dominance and 14 synonyms for high prestige. We asked 20 undergraduate psychology students and 5 graduate psychology students to rate each

TABLE 1
STIMULI EMPLOYED (SC-)IAT IN INCLUDING TRANSLATION

Authentic Pride	Hubristic Pride	High Prestige Status	High Dominance Status
自信 (self-confidence)	傲慢 (arrogance)	控制 (control)	威望 (stature)
信心 (confidence)	狂妄 (conceit)	主导 (dominance)	名望 (distinction)
荣誉 (honor)	自夸 (self-aggrandize)	统治 (authority)	名声 (reputation)
成就 (accomplishment)	夸大 (exaggerate)	权势 (power)	名誉 (honorary)
胜利 (victory)	高傲 (snobbish)	指挥 (command)	影响 (influence)
成功 (success)	炫耀 (pompous)		
获胜 (winning)	自负 (stuck-up)		

word for its relevance to high dominance and high prestige, using Likert-type 6-point scales with anchors of 1: Least relevance to high dominance or prestige and 6: Most relevant to high dominance or prestige. Based on these ratings, we selected the above five dominance words and five prestige words, which obtained the highest ratings. The mean rating of each of the selected words was greater than 4.5 on dominance or prestige relevance scales. Moreover, there were no significant differences in word frequency of the target stimuli ($M = 132.86$, $SD = 200.66$, vs $M = 4.29$, $SD = 4.57$; $t_{12} = 1.70$, $p = .14$) or attribute stimuli ($M = 90.80$, $SD = 114.17$, vs $M = 63.00$, $SD = 129.78$; $t_8 = 0.36$, $p = .73$).

Analysis

We used the improved scoring algorithm (Greenwald, Nosek, & Banaji, 2003) to calculate implicit associations. The data included response times from trials in B3, B4, B6, and B7. First, we eliminated trials with response time > 10 sec. and response time < 400 msec. and excluded subjects with more than 10% of trials' response times less than 300 msec. Second, we added 600 msec. to the mean trial time within each block for each error response. Third, we calculated the total *D* score by averaging two *D* scores, one by dividing the difference between mean reaction times for B3 and B6 by the pooled standard deviation for all trials in B3 and B6, the other by dividing the difference between mean reaction times for B4 and B7 by the pooled standard deviation for all trials in B4 and B7. Each participant was given a *D* score, representing the strength of implicit association. In our studies, we reported the mean *D* score (Greenwald, *et al.*, 2003) and the result from one-sample *t* test. We used the same analytic procedure in Experiments 1 through 4.

RESULTS

Reaction times were faster when authentic pride words were paired with high prestige status words and hubristic pride words were paired with high dominance status words than when authentic pride words were

TABLE 2
MEAN IAT EFFECT AND MEAN REACTION TIMES OF COMPATIBLE
PAIRS AND INCOMPATIBLE PAIRS IN EXPS. 1 AND 2

	<i>D</i>		<i>t</i>	Compatible (msec.)			Incompatible (msec.)		
	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	95% <i>CI</i>	<i>M</i>	<i>SD</i>	95% <i>CI</i>
Exp. 1	0.64	0.45	7.40*	1,129	345	993, 266	1,602	386	1,450, 1,755
Exp. 2	0.90	0.45	12.41*	869	246	789, 949	1,625	420	1,488, 1,761

**p* < .001.

paired with high dominance status words and hubristic pride words were paired with high prestige status words. Participants showed a strong implicit association (see Table 2). These results suggest that, at the semantic level, the implicit associations in the compatible pairs were stronger than those in the incompatible pairs.

EXPERIMENT 2

To assess whether the implicit associations between authentic pride and prestige status and between hubristic pride and dominance status were limited to the semantic level, Experiment 2 was conducted, in which we paired authentic and hubristic pride words with virtual prestige and dominance protagonists in fictional stories. Data would show whether implicit associations between types of pride and status could be generalized to a simulated social situation.

METHOD

Thirty-nine college students (20 men, 19 women) were recruited to participate in this experiment in exchange for payment. All participants signed informed consent before experiment. The method was the same as that in Experiment 1, except that words of high prestige and dominance words were replaced by names of protagonists with virtual high prestige and dominance in vignettes. This vignette methodology allowed us to manipulate and control the protagonist’s behavior depicting high dominance and low prestige or high prestige and low dominance.

First, participants read two vignettes, one describing a protagonist of high dominance and low prestige and the other a protagonist of high prestige and low dominance; see Appendix A (pp. 440-441) for two vignettes adapted from fictional stories used in previous studies (Snyder, *et al.*, 2008). These protagonists obtained high social status by either their attitudinal dominance or prestige according to Henrich and Gil-White’s theory (2001). After reading the vignettes, participants were asked to imagine what the protagonists were like and then to complete the IAT in which the names of two protagonists were paired (111, 333, 555, and 777; 222, 444, 666, and 888) with the two types of words for pride.

RESULTS

The mean reaction times were faster for compatible pairs than for incompatible pairs. Participants showed a strong implicit association (D score = 0.90, $t_{38} = 12.41$, $p < .001$) (Table 2). The IAT effect in Exp. 1 seemed to be replicated for imagined social situations based on reading a description.

EXPERIMENT 3

The IAT effect found in Exps. 1 and 2 showed only the combined association strength of high prestige + authentic pride/high dominance + hubristic pride associations compared with the strength of high prestige + hubristic pride/high dominance + authentic pride associations. Separate association strengths for target concepts of different IATs (Nosek, *et al.*, 2005) could not be assessed. Thus, in a series of four experiments, a single-target IAT (Exps. 3a and 3b) and a single-attribute IAT (Exps. 3c and 3d) were used to investigate the implicit association between authentic pride and prestige and that between hubristic pride and dominance. In contrast to the standard IAT, the single-target or single-attribute IAT could measure association strength between one concept and two attributes or between one attribute and two concepts (Penke, *et al.*, 2006; Bluemke & Friese, 2008). These experiments would show whether the implicit association strength between authentic pride and high prestige status would be stronger than that for the two incompatible pairs, and whether the association strength between hubristic pride and high dominance status would be stronger than that for the two incompatible pairs.

METHOD

In exchange for payment, 91 undergraduate students were recruited to participate in these four experiments. Two participants' data were deleted for having error rate in excess of 20%. There remained 89 undergraduate students in these four experiments (24 for Exp. 3a, 75% women; 26 for Exp. 3b, 38% women; 24 for Exp. 3c, 54% women; and 25 for Exp. 3d, 48% women). All participants signed informed consent before the experiment. Compared with the standard IAT, the single-target IAT uses two attribute categories (authentic pride words and hubristic pride words) and one target (high prestige status words in Exp. 3a and high dominance status words in Exp. 3b). In Exps. 3c and 3d, we used the single-attribute IAT with two targets (high prestige status words and high dominance status words) and one attribute category (authentic pride words in Exp. 3c and hubristic pride words in Exp. 3d). The testing and analytical procedure in the two IAT methods was similar to those in the standard IAT as described in Exp. 1.

RESULTS

In Exp. 3a, high prestige words were associated more strongly with authentic pride words than with hubristic pride words. The mean reac-

tion time was faster when high prestige status words were paired with authentic pride words than when paired with hubristic pride words. However, in Exp. 3b, we did not find reaction time differences between high dominance/hubristic pride word pairs and high dominance/authentic pride word pairs. In Exp. 3c, authentic pride words were associated more strongly with high prestige status words than with high dominance status words. However, in Exp. 3d, there were no significant reaction time differences between high dominance/hubristic pride word pairs and high dominance/authentic pride word pairs (Table 3).

These results showed that the implicit association strength between authentic pride and high prestige status was stronger than that in the two incompatible pairs. However, the implicit association strength between hubristic pride and high dominance status did not differ from that in the two incompatible pairs. In other words, the implicit association strength between authentic pride and high prestige status appeared stronger than that between hubristic pride and high dominance status.

TABLE 3
MEAN SC-IAT EFFECT AND MEAN REACTION TIMES OF COMPATIBLE
PAIRS AND INCOMPATIBLE PAIRS IN EXPS. 3A, 3B, 3C, 3D, AND 4

	<i>D</i>		<i>t</i>	Compatible (msec.)			Incompatible (msec.)		
	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	95% <i>CI</i>	<i>M</i>	<i>SD</i>	95% <i>CI</i>
Exp. 3a	0.31	0.36	4.19*	777	173	704, 850	912	188	833, 991
Exp. 3b	0.05	0.34	0.68	842	177	770, 913	859	174	788, 929
Exp. 3c	0.35	0.35	5.02*	706	109	660, 752	856	232	758, 954
Exp. 3d	0.10	0.25	1.98	795	182	719, 870	838	168	769, 907
Exp. 4	0.23	0.34	3.99*	839	294	738, 940	928	265	837, 1,019

**p* < .001.

EXPERIMENT 4

One alternative explanation for the implicit association between authentic pride words and high prestige status words is that these words were all positive stimuli. Perhaps any positive words (e.g., happiness, which is not directly related to authentic pride) may have strong implicit association with high prestige status words because of the shared positivity. To assess the specificity of the implicit association, Exp. 4 was conducted to assess whether high prestige status words were associated more strongly with authentic pride words than with happiness-related words.

METHOD

Thirty-five college students (14 men, 21 women) were recruited to participate in Exp. 4. All participants signed informed consent. We used single-target IAT methodology, as in Exps. 3a and 3b, but hubristic pride

words were replaced by happiness words. The happiness words were 快乐 (happy), 愉悦 (joyful), 愉快 (pleasant), 欢乐 (cheerful), 喜悦 (delighted), 兴奋 (excitement), 开心 (rejoicing), whose meanings ranged from delight to happiness to excitement to elation. We asked another 48 college students to write down 10 synonyms of happiness. We calculated the frequency of each word based on the participants' lists. The highest frequency words were the above words with their frequencies in parentheses: 快乐 (41), 开心 (34), 欢乐 (31), 愉悦 (28), 喜悦 (27), 兴奋 (26), 愉快 (23). The average frequency was 30.

RESULTS

A stronger implicit association was found between authentic pride words and high prestige status words than that between happiness words and prestige status words. Specifically, the mean reaction times were faster in high prestige/authentic pride word pairs than in high prestige/happiness word pairs (Table 3). These results suggest that the strong association between authentic pride and high prestige status could not be accounted for by shared positivity.

EXPERIMENTS 5A AND 5B

Although the results from the IAT experiments were consistent, one major potential confound of all IAT studies is individual differences in brain functions such as executive control (McFarland & Crouch, 2002; Mierke & Klauer, 2003; Richeson, Baird, Gordon, Heatherton, Wyland, Trawalter, *et al.*, 2003; Klauer, *et al.*, 2010). The affect misattribution procedure (AMP) is an implicit association method that eliminates the influence of individual differences in participants' cognitive control (Payne, *et al.*, 2005). In Exps. 5a and 5b, AMP was used to assess implicit associations between authentic/hubristic pride and high prestige/dominance status.

METHOD

Sixty college students were recruited to participate in Exps. 5a and 5b (30 for Exp. 5a, 73% women; 30 for Exp. 5b, 43% women). All participants signed informed consent. None had prior experience with the Japanese language.

The AMP was developed to evaluate participants' implicit attitudes by testing whether participants make misattributions about their own attitudes (Payne, *et al.*, 2005). The AMP examined whether participants would misattribute their status or pride associations to a neutral stimulus. In the typical AMP (Payne, *et al.*, 2005), each trial includes two stimuli (the prime stimulus and the target stimulus), each of which was followed by a mask picture. Participants were asked to ignore the prime and respond only to the target stimulus (which is a typically meaningless symbol such as a Chinese character to an English speaker). The extent to which the tar-

get stimulus is affected by the prime stimulus is used to index the participants' implicit attitudes toward the prime stimulus. The extent of influence was calculated as differences in reaction times between types of the prime stimuli of interest (e.g., an outgroup person vs an ingroup person, typically contrasting with a person from a neutral group as well). The AMP procedure can be used with or without a warning to the participants about avoiding the influence from the prime stimuli.

In the experiments, the prime words were either words related to the two types of status (Exp. 5a) or words related to the two types of pride (Exp. 5b) as well as a neutral stimulus (a grey screen). Each prime stimulus was presented in the center of the screen for 75 msec., followed by a mask picture (used in Payne, *et al.*, 2005) for 125 msec., then a Japanese kana character as the target stimulus (see Appendix B, pp. 442) for 100 msec., and then another mask picture (Fig. 1).⁴ The second mask remained on the screen until the participant responded and the next trial started immediately afterwards. Participants were warned about avoiding the interference from the prime stimuli. In Exp. 5a with words related to status as the prime stimuli, participants were instructed to press one key if they felt that the Japanese kana character "looks like it shows authentic pride," or the other key if they felt that the Japanese kana character "looks like it shows hubristic pride." In Exp. 5b with words related to pride as the prime stimuli, participants were asked to press one key if they felt that the Japanese kana "looks like it shows high prestige," or the other key if they felt that the Japanese kana "looks like it shows high dominance." There were 60 trials, with the 14 words related to pride and 10 words related to status repeated multiple times. Sixty different Japanese kana were used as the target stimuli.

If high prestige is implicitly associated with authentic pride and high dominance is implicitly associated with hubristic pride, this association could be misattributed to the Japanese kana characters. The Japanese kana characters after the high prestige words would more frequently be perceived as authentic pride than the Japanese kana characters after the control (gray box) prime and the high dominance prime. On the contrary, the Japanese kana characters after the high dominance words would more frequently be perceived as hubristic pride than the Japanese kana characters after the control (gray box) prime and the high prestige prime.

RESULTS

One-way analysis of variance (ANOVA) showed a significant main

⁴Payne, *et al.* (2005) used a mask only for target words. Shariff and Tracy (2009) investigated implicit association between pride and status by using AMP. They used the same mask for prime words as for target words in AMP. This 4-step procedure might also be valid. So, we used a mask after the AMP primes instead of a blank screen.

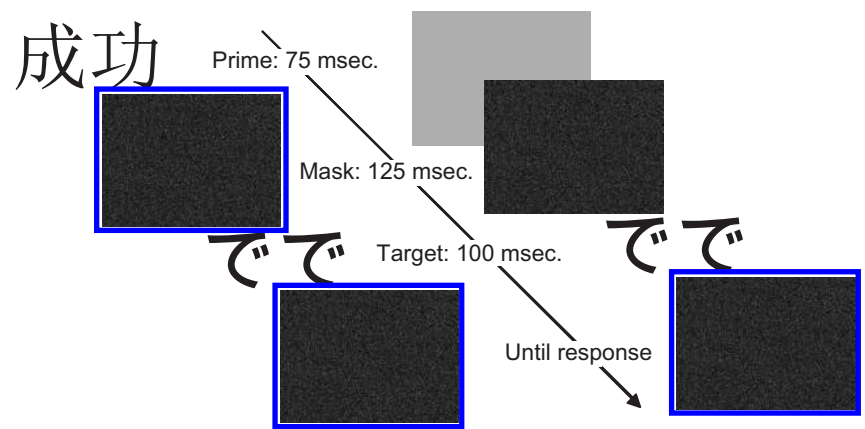


FIG. 1. The procedure of AMP used in Exps. 5a and 5b.

effect of the type of prime stimuli in both Exp. 5a ($F_{2,58}=3.59, p=.04$) and Exp. 5b ($F_{2,58}=3.91, p=.04$; Table 4). *Post hoc* comparisons demonstrated that the priming effect was significant for the authentic pride prime condition compared with the neutral condition in Exp. 5a ($F_{1,29}=9.90, p<.01$) and for the high prestige status condition compared with the neutral condition in Exp. 5b ($F_{1,29}=7.22, p<.05$). However, we did not find the priming effect for the hubristic pride prime condition compared with the neutral condition in Exp. 5a ($F_{1,29}=1.42, p=.24$), nor for the high dominance status condition compared with the neutral condition in Exp. 5b ($F_{1,29}=0.09, p=.77$). These results confirmed a strong implicit association between high prestige status and authentic pride, and a weak implicit association between high dominance status and hubristic pride.

TABLE 4
THE MEAN PERCENTAGE OF HIGH PRESTIGE RESPONSES IN EXP. 5A,
AND THAT OF AUTHENTIC PRIDE RESPONSES IN EXP. 5B

	<i>F</i>	Partial η^2	Ob- served Power ^a	Compatible			Neutral			Incompatible		
				<i>M</i>	<i>SD</i>	95% <i>CI</i>	<i>M</i>	<i>SD</i>	95% <i>CI</i>	<i>M</i>	<i>SD</i>	95% <i>CI</i>
Exp. 5a	3.59*	0.11	0.61	62	18	55, 68	49	14	44, 54	55	21	48, 63
Exp. 5b	3.91*	0.12	0.61	63	15	57, 68	50	17	44, 57	52	18	45, 59

^a $p<.05$.

GENERAL DISCUSSION

In previous studies, self-reports were used to investigate the relation between authentic/hubristic pride and prestige/dominance status. They found that hubristic pride was associated with dominance, whereas authentic pride was associated with prestige (Cheng, *et al.*, 2010). The pres-

ent study extended the previous research by using the IAT and the AMP to examine whether the association occurs at the implicit semantic level. Consistent with previous research (Cheng, *et al.*, 2010), results showed that authentic pride was associated strongly with high prestige status. However, no strong implicit association between hubristic pride and high dominance status was noted. These findings were consistent regardless whether the single-target IAT, or the single-attribute IAT, or the AMP was used.

The main explanation of the differences between Cheng, *et al.* (2010) and the current study lies in the research methodology. Cheng, *et al.* (2010) used self-report and peer-report data to measure explicit attitudes to pride and high status, whereas in the present work the IAT and the AMP were used to examine implicit associations between two semantic categories. As in other studies contrasting explicit with implicit measures (Greenwald, *et al.*, 2003), these results can be explained by the dual-representation theory (Chaiken & Trope, 1999; Wilson, Lindsey, & Schooler, 2000) or the person versus culture theory (Karpinski & Hilton, 2001; Olson & Fazio, 2004). Further research on pride should include both explicit and implicit representations of the two facets of pride.

The present findings have several implications for understanding the implicit associations between pride and high status. First, authentic/hubristic pride has different implicit semantic associations with high prestige/dominance status. Shariff and Tracy (2009) reported strong implicit association between nonverbal expression of pride and high status. However, they did not differentiate authentic pride from hubristic pride or high prestige status from high dominance status. The authentic pride had a strong implicit semantic association with high prestige status, which might be explained by the motivational hypothesis of pride (Williams & DeSteno, 2008). Williams and DeSteno (2008) reported that pride might lead individuals to persevere on difficult and tedious tasks (Williams & DeSteno, 2008). Such perseverance would help individuals in their pursuit of success and high prestige. It is also possible that proud individuals may show dominant behaviors (Williams & DeSteno, 2009), but Williams and DeSteno (2008, 2009) did not distinguish between authentic pride and hubristic pride. Additional work must examine whether authentic pride and hubristic pride would show motivational functions such as perseverance.

A second implication is that the strong implicit association between authentic pride and high prestige was not based on shared common positivity. This result is consistent with previous behavioral and brain-imaging studies (Takahashi, Matsuura, Koeda, Yahata, Suhara, Kato, *et al.*, 2008; Williams & DeSteno, 2008; Shariff & Tracy, 2009). Takahashi, *et al.* (2008) found that pride activated the right posterior superior temporal sulcus and the left temporal pole which have been implicated in theory of

mind, whereas general positive emotions (e.g., joy) activated the *ventral striatum* and the *insula/operculum* which subserve processing hedonic or appetitive stimuli. To investigate the specific functions of the two facets of pride, more controlled studies must be designed to examine various activation patterns for pride versus joy (Robins & Schriber, 2009). Third, in Exp. 2 the IAT and the vignettes methodology were combined. The latter allows manipulation of virtual behavior to simulate ideal protagonists (Snyder, *et al.*, 2008). In addition, this method may better assess ecological validity of this type of research. The results suggested that individuals' implicit attitudes could be investigated by simulated protagonists described in vignettes.

Our study had several limitations. All experiments in this study used Chinese undergraduate students as participants. It is unknown whether results could be replicated with other students or participants from other cultural backgrounds. Recent studies reported that culture affects individuals' attitude toward power (Torelli & Shavitt, 2010). Theoretically, powerful people in vertical individualistic societies would strive for personal status and prestige, whereas powerful people in horizontal collectivistic societies would benefit and help others with their power. A recent neuroimaging study further showed that culture could be associated with the brains' response to dominance (Freeman, Rule, Adams, Jr., & Ambady, 2009). The medial prefrontal cortex was activated by dominant stimuli for American participants, but by subordinate stimuli for Japanese participants. Cross-cultural research is required to evaluate whether culture is related to the representation of the two facets of pride and their associations with status.

Another limitation of the present study is lack of assessment of gender differences given the very small sample size in the experiment. Gender may be an important moderator variable. Although gender differences have not been examined on attitudes related to prestige and dominance, some findings suggested that women and men may have different attitudes to high prestige and dominance individuals. Women appeared to prefer men of high prestige over high dominance in mates (Snyder, *et al.*, 2008). There are also contextual variations: the women preferred men of low over high dominance as mates but high over low dominance in an athletic competition (Snyder, *et al.*, 2008) or in brief sexual contacts (Kruger & Fitzgerald, 2011). Men also prefer men of high prestige for social relationships (Kruger & Fitzgerald, 2011). Based on the Social Dominance Theory (Pratto, Sidanius, Stallworth, & Malle, 1994; Sidanius & Pratto, 1999), men were more dominance-oriented than women.

Another limitation is the neutral stimulus in Exp. 5 (a grey box), which was not an ideal choice because no words were opposed to the words of

pride and status in the other conditions. A better neutral stimulus would be words not related to pride or status.

In conclusion, the current studies provided evidence that the association between authentic pride and high prestige status might be applicable at the implicit semantic level, but the implicit association between hubristic pride and high dominance was weaker.

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APPENDIX A

STIMULUS MATERIALS USED IN EXPERIMENT 2

High-dominance /Low-prestige Male Target Vignette

11, 333, 555, and 777 were from different universities of China. They were male and 5 feet 10 inches tall, and weighed 165 lb. They had similar life experiences too. They all were in the second semester of the junior year and had been members of their respective students' union since they began college. They tended to take charge of every situation with their commanding and powerful presence. They were direct and overbearing in both formal and informal social circumstances. All their movements tended to communicate dominance and authority. They were very competitive, refusing to yield to opponents or challengers to their leadership. When challenged, they would tower over any competitor with a show of oppressive will which usually resulted in retreat by the competitor.

They were all determined to become the president of their student union that year and willing to challenge anyone who got in their way. When it came time for nominations, they stood and paced while they spoke and were emotional at times when expressing why they should be nominated for president. They suspected that they had competitors for the position and expressed subtle threat to competitors. They reminded the members of the student union that they had frequently led meetings, directed important decision making, and headed important activities. They also reviewed their many positive attributes, successes, and accomplishments across many areas of their lives. When they spoke forcefully, their peers would avoid eye contact and slouch in their seats.

It was obvious that their peers held them in low esteem and were not ready to concede the presidency to them when they were called for further nominations. They resolved to defeat their competition and pressure their peers until they were sure to be elected. In spite of the overall low regard their peers held for them, they were elected presidents of their student unions because they were characteristically dominant and commanding of their peers. It was clear that they aimed to succeed by oppressing and dominating their competitors.

High-prestige/Low-dominance Male Target Vignette

222, 444, 666, and 888 were from different universities of China. They were male and 5 feet 10 inches tall, and weigh 165 lb. They also had similar life experiences. They were in the second semester of the junior year and had been members of their respective student unions since they began college. They tended to be illustrious in every situation with their notable and distinctive presence. They were prominent and respectable in both formal and informal social circumstances. All their movements and

speech tended to communicate dignity, credibility, and honor. They preferred working with or influencing others over direct competition. When challenged in some way, they would usually blow it off and allow others to have their way—especially when someone was resistant to influence.

They were pleased and willing to accept nominations to become the Presidents of their student unions that year. This came as no surprise because the members of the student union had frequently asked them to hold meetings, direct important decision making, and head important activities. When asked to speak with regard to the nomination, they sat and began to speak in a relaxed and confident manner. They suspected that they had a competitor but were unwilling to attempt to control or dominate the situation. Furthermore, they were unwilling to act oppressive or overbearing toward a competitor or their peers. They briefly spoke of their many positive attributes, successes, and accomplishments across many areas of their life. While they spoke, their peers sat up, made good eye contact and listened intently until they were finished speaking.

They were pleased when their fellow student union members expressed to them that they had already unanimously voted among themselves to make them presidents. Furthermore, they acknowledged that this decision was based on their consistent successes and frequent accomplishments. It was clear that their peers admired them and held them in high esteem and regard.

APPENDIX B

JAPANESE KANA USED IN EXPERIMENT 5

ああ	にに	せせ	やや
いい	のの	ぜぜ	ゆゆ
うう	はは	ソソ	よよ
うう	ひひ	そそ	ララ
おお	ビビ	たた	ララ
かか	ふふ	チチ	らら
きき	ほほ	ちち	リリ
ぐぐ	まま	ツツ	りり
けけ	みみ	つつ	るる
げげ	むむ	テテ	レレ
ココ	メメ	でで	れれ
ごご	めめ	とと	ろろ
ささ	モモ	ドド	わわ
じじ	もも	ナナ	をを
すす	ヤヤ	なな	んん

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