

# Integrity Perceptions and Behavior Triggered by the Hand-Over-Chest Gesture: A Semiotic Perspective<sup>1</sup>

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## *Abstract*

The current study, based on Semiotic Theory, Conceptual Metaphor Theory, and a situational induced research method, explores the influence of the hand-over-chest gesture when it comes to perceptions and behaviors of integrity within the Chinese cultural context. Three different experiments consistently prove that the hand-over-chest gesture is associated with the concept of integrity in the Chinese culture, and helps to increase individuals' sense and behavior of integrity. In Experiment 1, the target person performing the hand-over-chest gesture was regarded as an integrity person. In Experiment 2, the statements in the self-introduction from an interviewee who performed the hand-over-chest gesture were considered more credible than the statements made by the interviewee with the control gesture. In Experiment 3, compared with those performing the control gesture, the participants with the hand-over-chest gesture gave more honest ratings to the least unattractive women and refrained from telling white lies. All the three experiments achieved statistically significant results. The results in this study indicate that the hand-over-chest gesture is the symbolic body language for Chinese college students to express integrity, triggering more trust in gesture makers and less white lies from the gesture makers themselves. This paper raises suggestions for further research on this topic as well.

*Keywords: integrity perception and behavior, gesture, semiotics, conceptual metaphors, embodied cognition*

## 1. Introduction

Integrity is a frequently discussed social behavior in modern society, and also a highly intriguing area of study for academics. According to *Modern Chinese Dictionary*, integrity is defined as “honesty” and “the adherence of credit” (Linguistics Institute of Chinese Academy of Social Sciences [CASS], 2005, p. 174). Such an abstract definition is unable to fully arouse the specific perceptions of integrity. Therefore, it is especially important and meaningful to conduct research on how to turn the abstract concept of integrity into a perceptually intuitive gesture, how to initiate the integrity perceptions and behaviors through the symbolic gesture, and try to seek for the embodiment evidences about integrity from the semiotic perspective.

### 1.1 Sign theory, metaphor and behaviors

Semiotics is the science of signs, of symbolic behavior or of communication system (Lyons, 2004, p. 17). Communication is the exchange of ideas between two or more people. While verbal language is the main way for people to convey messages, non-verbal communication also plays an important role for people in sending wordless messages and influencing others' perceptions. Such messages can be sent through symbolic behaviors such as gestures, facial expressions, and eye contact because symbolic behaviors are semiotically featured. According to Peirce's sign theory of the three-dimensional system, a sign or symbolic behavior can be classified into three categories, namely i) sign or *representamen*, ii) object, which is also referred to as referent, and iii) interpretant (Peirce, 2003, p. 117; Smith, 2005). Sign means the physical signs explicitly existing in the real world, and is similar to the Saussure's concept of the signifier. Object refers to something that is represented or exemplified by the sign, which owns both concrete and abstract properties/features in nature. Interpretant means any meanings conveyed by the sign about the object which was previously unknown (Leeds-Hurwitz, 1993). Peirce's sign theory is very useful in helping us understand the abstract ideas or concepts and their abundant interpretations. People usually use many concrete concepts and gestures to interpret the abstract concepts and ideas. This cognitive mechanism is explained and illustrated in Lakoff and Johnson (1980) with lots of metaphorical structures of concepts. For example, the statements such as “She is upright.” and “He is high-minded.” are used to illustrate the

metaphorical structure “virtue is up” (Lakoff & Johnson, 1980, p. 16). The sign “virtue”, which refers to the abstract concept of “virtue personality” such as upright and high-minded in the above cases, is the object in Peirce’s theory, and the concrete orientational concept of “up” is the interpretant. Even though the object of “virtue personality” has many properties, the above examples highlight the orientational property of “up”. People also use upward fists to express powerfulness. In the same way, the symbolic behavior of the upward fist as a sign is used to indicate the abstract idea of powerfulness. How do people easily understand these expressions and symbolic behaviors in the daily life? Lakoff and Johnson (1980, 1999) claim that the human cognitive mechanism of metaphor plays an important role in the communication processes.

Metaphors, which are used so frequently in the empirical reality that we are sometimes unaware of them, are essential to any kind of communication and speech. In their famous monograph *Metaphor We Live By*, Lakoff and Johnson (1980) have clearly shown the way metaphors work in our minds to form and develop abstract concepts, like morality, time, etc. With the abundant examples, they claim that features and properties of abstract concepts are drawn by metaphorical mapping from concrete concepts. They put forward the Conceptual Metaphor Theory and contend that certain features of abstract concepts are drawn from metaphorical mappings of concrete concepts (Lakoff & Johnson, 1999). Metaphor mapping refers to the psychological association of the metaphorical relationship between two concepts. Such conceptual mapping processes endow many abstract social concepts with concrete sensory perceptions, sense of bodily movements, and even physical and societal characteristics, etc. Abstract concepts retain key components of concrete concepts, which indicates the congruent effect of metaphors. As a cognitive means, metaphors assist individuals in understanding the experiential basis of abstract concepts (Lakoff & Johnson, 1980). Embodiment-orientational studies have shown highly abstract moral concepts come with physical characteristics such as high-morality vs low-immorality (Peng & Yu, 2012).

Embodied Cognition theory contends that many cognitive characteristics are fundamentally linked to an individual’s body and its movements. Characteristics of the body such as somatic sensations and internal sensations like pain, heartbeat and emotions also have a significant antecedent effect on cognition (Goldman & de Vignemont, 2009). Metaphors affect social thoughts, attitudes, and behaviors.

Manipulating the schema of a concept changes how people process information of a different concept that is metaphorically consistent and related to the former. (Landau, Meier, & Keefer, 2010). Such metaphorical congruency exists not only when people are explicitly expressing the linguistic metaphors, but also when related linguistic metaphors are implicit and body-induced intuitive. Social and cognitive psychology studies have constantly proved that metaphors influence individuals' social attitudes. The congruent effect of oppositional adjectives and rating adjectives such as "high-positive word" and "low-negative word" yield significantly faster reaction time among the subjects than "high-negative word" and "low-positive word", where the congruent effect is present in the speed of the manual pressing of buttons (Ansoorge & Bohner, 2013). Metaphors, too, affect individuals' social behaviors. Studies have shown that more deception and lies appear in a dark and dim room than in a bright and well-lit room, demonstrating the metaphorical consistency in the metaphorical structures of bright-honest, dark-dishonest. Results in the studies are not influenced by any anonymity factors (Chiou & Cheng, 2013; Wang, 2015; Zhong, Bohns, & Gino, 2010).

## **1.2 Integrity structure, gesture and integrity behaviors**

With a series of studies on the structure of integrity, Chinese academics have achieved tremendous results. Firstly, based on personality trait studies, academics have analyzed the structural dimensions of the integrity trait of the Chinese people and their relevant behavior tendencies. According to Wang Dengfeng and Cui Hong (2005), integrity trait exists in the Chinese "Big Seven" personality, with which an individual displays qualities of practicing what they preach and being true to oneself, reflecting the behavioral characteristics of credibility. In accordance with the lexicology hypothesis, Zhao et al. (2009) carried out an exploratory and confirmatory study on the integrity personality structure through the research method of personality adjective rating. In their study, the integrity personality structure is made up of the positive dimension and the negative dimension, each of which respectively include four main facets. The positive dimension involves sincerity, confidence, justice, and trustworthiness, whereas the negative dimension consists of selfishness, sophistication, guilefulness, and untruthfulness. Using a qualitative analysis paradigm, Wu Jixia and Huang Xiting (2012) carried out a localized explorative study on Chinese people's integrity structure by utilizing the procedures of the Grounded Theory to reinforce the theoretical base

of integrity personality. The result from the study has shown that integrity personality of Chinese people is made up of four main factors, namely, honesty, credibility, trustworthiness, and sense of responsibility. The distinguishing relationship features of the four main factors are the hierarchical nature of the “sense of responsibility”, the relevance relations among the four factors, and the reciprocity between the four factors and the external environment.

Secondly, through the exploration of the structures of two characters, *chéng* (honesty) and *xìn* (credit), and the a semantical analysis of idioms relating to integrity, Leng Jie and Wu Jixia (2016) put forward the metaphorical structure of the concept of integrity possessed in the mind of the Chinese people, and proposed that the integrity concept of the Chinese people has the structural consistency among the three elements of mental perceptions, words and actions. The abstract concept of integrity vitally relies on human body organs—heart, mouth, and body—as its physical basis, suggesting that integrity is mankind’s innate attribute. Integrity means that people strongly adhere to consistency between mental perceptions and words, between mental perceptions and behaviors, between words and behaviors and even among mental perceptions, words and behaviors. The heart is the source of mental perceptions such as thoughts, attitudes, and emotions of people. Words from the mouth must present the inner perceptions and thoughts in order for people to feel peaceful and calm. Behaviors actualized through body involvement must be the mirror of one’s inner thoughts, attitudes, and emotions. And words and behaviors must echo each other in order for people to be thought of as honest, dependable, confident, and composed. Even though there exists the consistency among the three elements in the integrity structure, the complex societal culture and rich inner states that people harbor in their hearts would destroy or weaken the perseverant consistency of the three elements of mental perceptions, words, and behaviors, which leads to the contradictions among the mental perceptions, words and behaviors.

With the increasing research achievements emerging in the embodied cognition, scholars have tried to explore the behavior of integrity in terms of embodied experiences. Some experimental researches have showed that body posture and movements affect attitude toward and behavior of integrity. For instance, the study of Parzuchowski and Wojciszke (2014) has shown that the action of touching one’s left side of chest, i.e. the area where the heart is located, is linked to the concept of honesty, where the doer was perceived to be honest by others. Feelings triggered by body

movements have a mediating effect on individuals' behavior of integrity. For example, Yap et al. (2013) research finds that individuals who tend to perform extensive body movements are more likely to commit theft, cheating during exams, and violate traffic regulations in a driving simulation test. Subjects' sense of empowerment during self-reporting is the intermediary between physical extension and dishonesty. (Dis)honest behavior, in turn, affects mental state. As Lee and Schwarz (2010) report, subjects who lie through voicemail are more inclined to choose mouthwash as a reward for the participation in the experiment, and subjects who lie through handwritten or electronic mail are more inclined to choose hand soap. The embodied characteristics of the concept of integrity contains social and experiential information relating to integrity, which reveals the functions and uses of the concept, as well as how people utilize the concept of integrity in their daily lives. The above researches show that the unconscious activation of any social knowledge structure of the concept of integrity exerts multiple effects on an individual's psychological system about integrity, such as perception, evaluation, and behavior. Social concept activation is not the activation of a simple concept; instead, it is about the activation of the structure beneath the concept (Bargh, 2006). An activation of schema in a situation has an unconscious influence on the behaviors in subsequent unrelated events.

### **1.3 Present study**

Overall, Chinese localized studies on integrity have confirmed integrity as a stable personality trait that has the behavior tendency of honesty and the adherence of credit. But strong evidence from empirical research is required because the personality-oriented research results are mostly achieved by using qualitative analysis. Since there are many adjectives used to describe persons of integrity, experimental verification is needed to confirm whether these adjectives have any psychological reality. That is, is there a daily widely used body movement for the Chinese people to display the psychological and behavioral state of integrity? Can the body movements of people trigger their mental disposition of trust or the behavioral tendency of honesty?

There are descriptions in the Chinese classics and idioms about how individuals usually reflect on themselves honestly. For example, in the famous Confucian Analects, philosopher Zeng-zi is known for his reflection daily. He once said, "I examine myself daily on three things: Have I been unfaithful in business transactions with others? Have

I been insincere in my friendships? Have I not learnt anything in my learning from my masters?” In the Chinese language, the idiom “*mén xīn zì wèn*” is used to represent introspection and self-examining. According to *Modern Chinese Dictionary*, “*mén xīn*” means to “place [one’s] hand over [one’s own] chest, representing self-examining and self-reflection” (CASS, 2005, p. 934). The word “chest” in this context refers to “the area beneath the sternum” (CASS, 2005, p. 1530). The exact action of “hand-over-chest” is placing one hand gently on the lower-middle area of the sternum. *Mén xīn zì wèn* is a widely known Chinese idiom that describes a typical action in reflection. On top of that, in daily life, people often use the phrase “hold your conscience to it”, and it can be observed that people will unconsciously place their right hand on their chest or even lightly pat their chest. It is as though by engaging in such a gesture whatever is spoken is nothing but a conscientious truth. Can we then infer that the gesture of “handing over chest” is a symbolic action used by the Chinese people to express integrity? Can the gesture then evoke people to develop more trust in the gesture performer and initiate more behaviors of integrity in both performers and observers of the gesture?

Based on the metaphorical structure of integrity that emphasizes the metaphorical congruency between concrete elements (heart, mouth and body) and abstract elements (mental perceptions, words and behaviors) (Leng & Wu, 2016), the current study adopts the operational definition of integrity as the unanimity and uniformity in one’s heart/mental perceptions and mouth/words, one’s heart/mental perceptions and body/behaviors to explore the influence of the hand-over-chest gesture on the judgment and behavior of integrity from Chinese university students. The study includes three experiments. Experiment 1 investigates the symbolic properties and allusion of the gesture of the “handing over chest. Experiment 2 is based on a mock interview setting to investigate subjects’ degree of trust towards interviewees who performed the gesture of the “hand-over-chest”. Experiment 3 aims to investigate the degree of truthfulness in evaluating the attractiveness of women when performing the gesture of the “handing over chest”. The three hypotheses are put forward as follows:

- (1) The hand-over-chest gesture evokes the impression of integrity about the gesture maker;
- (2) The hand-over-chest gesture increases the level of credibility towards the gesture maker;
- (3) The hand-over-chest gesture initiates a more honest evaluation in the gesture

maker.

## **2. Experiment 1: More Characteristics of Integrity Elicited by the Gesture of the “Hand-Over-Chest”**

### **2.1 Study aim and hypothesis**

Firstly, it is important to know if the gesture of the “hand-over-chest” is the metaphorical and symbolic gesture that Chinese people use to express integrity. The gesture of the “hand-over-chest” is the action of placing one’s hand on one’s own chest. “Chest” refers to the lower-mid position of the sternum. The position of the hand is using the dominant hand and placing it naturally on the chest without any force.

Hypothesis: Compared with the control gesture maker, the target gesture maker will be described by subjects with more integrity-featuring adjectives such as “honest” and “trustworthy”.

### **2.2 Research method**

#### *2.2.1 Subjects*

A total of 313 subjects were teenage undergraduates ( $M_{age}=18.93$ ,  $SD=.84$ , Females=188, Males=125) who were randomly sampled and participated in the experiment voluntarily. The subjects were divided into two groups: 142 in the control gesture group and 171 in the target gesture group.

#### *2.2.2 Research design and materials*

Adopting the single factor between-subject design, the independent variable is the different gestures—the target gesture of touching the chest with a major hand and the control one of laying hand on the abdomen, and the dependent variable is the description of the gesture performer’s characteristics.

The design of the research material is a replication of that in Parzuchowski and Wojciszke’s (2014) study, in which the same man in two photographs performs two different gestures. Different from the Parzuchowski and Wojciszke’s (2014) study, the target gesture in current research is that the photographed man performs the gesture of putting his hand gently over his chest (Picture 1.1), while the control gesture is placing his hand over his abdomen (Picture 1.2). The man’s other features in the two

pictures such as facial expressions, hairstyles, and outfit remain the same. The pictures are produced in black and white, with the same lighting and exposure.

Picture 1.1 Target gesture



Picture 1.2 Control gesture



### *2.2.3 Research process*

On arriving at the experiment room of an English listening lab, subjects were assigned to individual desktop computers that were separated from each other by an opaque glass divider. Investigators then proceeded with a group survey in the following steps. Subjects received a paper questionnaire and were firstly required to fill in the demographic information. They then moved on to read the following questionnaire guidelines: Please complete the two tasks: 1. What do you think the person in the picture is trying to convey to others? 2. Please use the first 5 adjectives that come to your mind to describe the person in the picture. On the third step, investigators presented the stimuli picture of the man in the style of a PowerPoint presentation on their desktops, and then requested the subjects to finish the experiment tasks on the paper questionnaire while seeing the picture of the man on the desktop screen from time to time. Finally, the subjects were thanked verbally without any material reward.

## **2.3 Results and discussion**

### *2.3.1 The impression of integrity evoked by the hand-over-chest gesture about the gesture performer*

As predicted, the gesture of the “hand-over-chest” is a symbolic gesture for the Chinese people to express integrity, and the integrity personality in gesture performer is highlighted with the help of the gesture. In response to the question in Task 1, “What do you think the person in the picture is trying to convey to others?”, the results show that the number of subjects who perceived the man performing the gesture of the “hand-over-chest” as expressing integrity is significantly greater than the number of

subjects who regarded the same man performing the control gesture of the “hand over abdomen” as expressing integrity ( $\chi^2(1,313)=49.213$ ,  $df=1$ ,  $p<0.001$ ,  $\phi=.397$ ) (Table 1.1). Specifically, 40.94% of the respondents (70 out of 171 respondents) regarded the young man performing the hand-over-chest gesture as expressing integrity, while only 0.04% of the respondents (9 out of 142 respondents) regarded the same person in the control condition as expressing integrity. It clearly suggests that people regard the hand-over-chest gesture as the signal used to express integrity. As for the question in Task 2, “Please use the first 5 adjectives that come to your mind to describe the person in the picture”, the number of first-mentioned adjective of 5 belonging to the concept of integrity, which were used to describe the hand-over-chest man, is significantly greater than the first-mentioned and integrity-related adjectives used to describe the hand-over-abdomen man ( $\chi^2(1,313)=12.95$ ,  $df=1$ ,  $p<0.001$ ,  $\phi=.203$ ) (Table 1.2). Specifically, while 6.6% of the respondents (10 out of 142 respondents) used integrity-related adjectives to describe the hand-over-abdomen man, 21.6% responders (37 out of 171 respondents) used integrity-related adjectives to describe the hand-over-chest man. This suggests that the hand-over-chest gesture can be used to highlight the integrity personality in gesture performer. The results from the two questions clearly indicate that one can encode and efficiently communicate integrity without language, but by merely using an emblematic gesture. What’s more, the integrity-related adjectives used to describe hand-over-chest man are richer and more diversified than those used to describe the hand-over-abdomen man. Specifically, the integrity-related expressions used to describe the hand-over-chest man include “Please believe me”, “sincerity”, “being in good faith”, “trustworthiness”, “wholeheartedness”, “pure-heartedness”, “commitment”, and “I don’t cheat you”, etc. But the expressions used to describe the hand-over-abdomen man are only those such as “sincerity”, “loyalty”, “trust”, “genuineness”, and “I’m an upright man”. The expressions used by the experiment subjects to describe the young man who performs the hand-over-chest gesture involve the connotation of integrity. It is noteworthy that these descriptions are consistent with the expressions used to describe the honesty and integrity traits of the Chinese people in the personality trait studies (Wu & Huang, 2012; Yang & Peng, 1999). This finding supports the hypothesis that the gesture maker will be described with more integrity-featuring adjectives such as honest and trustworthy. Therefore, there exists a link between this gesture and the personality of integrity in the gesture performer. At the same time, the integrity personality is highlighted by the gesture performer with the help of the gesture of the “hand-over-chest”.

Attributing internal states to people appears to be an especially important conceptual ability in humans (Barsalou, 2016). Manipulating the conceptual structure triggers the attributing of internal states (Li, 2014) and traits (Schubert & Koole, 2009) in individuals. The result in the present experiment indicates the link between the hand-over-chest gesture and the concept of integrity. That is, the hand-over-chest gesture, triggering the category members of integrity such as sincerity, wholeheartedness, honesty, and uprightness, etc., is the symbolic gesture for the Chinese people to express integrity. It clearly suggests that one can encode and communicate integrity without words, and merely by an emblematic gesture.

Table 1.1 Differences of expressions about the man making gestures

Man with gesture	Expressions		$\chi^2$	df	$\phi$
	Integrity	Non-integrity			
Hand-over-chest man	70	101	49.213***	1	.397
Hand-over-abdomen man	9	133			

Note: \*\*\*P<0.001

Table 1.2 Differences of characteristics description about the man making gestures

Man with gesture	Characteristics		$\chi^2$	df	$\phi$
	Integrity	Non-integrity			
Hand-over-chest man	37	134	12.950***	1	.203
Hand-over-stomach man	10	132			

Note: \*\*\*P<0.001

### 2.3.2 Examination of survey result

According to the primacy-of-output method, a concept is considered accessible if it is mentioned as the first characteristic in the description. The 313 first-listed characteristic descriptions were presented by the experiment subjects, of which 171 were about the hand-over-chest man, and 142 about the hand-over-abdomen man. Two experts, PhDs of English and Chinese languages who were not given the experiment task, were asked to classify these randomly listed characteristic descriptions in a dichotomous way so as to make sure whether they demonstrated integrity or not. The

ratings from both experts were significantly correlated ( $r=.87, p < 0.01$ ) (Table 1.3).

Table 1.3 Correlation of self-description rating from two experts

	Self-description Rating			$\chi^2$	
	N	<i>M</i>	SD	Expert 1	Expert 2
Expert 1	313	.210	.410		.870**
Expert 2	313	.200	.400	.870**	

Note: \*\* $P < 0.001$

### 3. Experiment 2: Higher Credibility about Words from the Gesture Performer of the “Hand-Over-Chest”

#### 3.1 Research aim and hypothesis

The investigation in Experiment 1 reveals that the gesture of the “hand-over-chest” is seen as sending signal of integrity, and evokes people to develop an impression of integrity about the gesture performer. Hence, can the gesture of the “hand-over-chest” (as in Experiment 1) evoke more trust in people towards the doer? What’s more, can the words from the hand-over-chest gesture maker be perceived as more credible? Experiment 2 attempts to resolve this question.

Hypothesis: Subjects will rate higher about the credibility of the self-description from the hand-over-chest man than the credibility of the self-description from the man with his arms at his sides.

#### 3.2 Method

##### 3.2.1 Subjects

154 undergraduates ( $M_{age}=19.06$ ;  $SD=.87$ , Females=113, Males=41) volunteered to participate in the study without any form of reward. They were separated into two groups, 75 students in the target group performing the gesture of the “hand-over-chest” and 79 students in the control group performing the gesture of the “hand hanging at two sides”.

##### 3.2.2 Research design and materials

The study adopts the single factor between-subject design, with the different gestures (the target one of placing the hand over the chest and the control one of freely hanging

both arms by the sides of the body) as the independent variable, and the levels of credibility evaluation on the interviewee's self-introduction as the dependent variable.

The research materials include: i) 2 photographs, Photograph 1 shows the interviewee performing the target gesture of "hand-over-chest" (Picture 2.1), and photograph 2 exhibits the same interviewee performing the control gesture of freely hanging both arms by the two sides of the body (Picture 2.2). The features of the interviewee in the two photographs such as facial expression, hairstyle, and outfit remain the same, and the pictures are produced in black and white, with the same lighting and exposure; ii) 4 minutes of audio recording about the interviewee's self-introduction in the context of job interview; iii) a Credibility Evaluation Questionnaire about interviewee's self-description in self-introduction. The statements rated in the questionnaire were compiled by referring to the exaggerated statements in the Chinese localized scale of the Social Desirability Scale (Zhao, 2011) and were edited to fit into the current study's context (See Appendix, Questionnaire 2-1). The statements described in the introduction are socially approved, however, impossible to achieve in most circumstances (e.g., "I always keep my promises", "I am always kind toward everyone, even when I am in preSSION", etc.). The statements adopt a 7-point scale for evaluation ranging from 1 (the least credible) to 7 (the most credible). The reliability index of the ten statements is  $\alpha=.79$ .

Picture 2.1 Target gesture



Picture 2.2 Control gesture



### 3.2.3 Research process

The present experiment took place in the setting of a job interview, where the key to the interview was the truthfulness of the interviewee's words. The experiment guidelines were presented from the start: "You are to evaluate the credibility of the statements in self-introduction about a graduating senior who is interviewed for a job. The computer screen will show the interviewee's photo which you are supposed to pay

close attention to. At the same time, please listen to the interviewee's self-introduction. You are then to rate the credibility of the self-describing statements delivered by the interviewee, with the scale ranging from 7 (the most credible) to 1 (the least credible).” Next, the subjects saw the photographs of the interviewee on the screen and listened to the self-introduction at the same time. When the self-introduction was over, the subjects were asked to complete the rating task and provide demographic information (see Appendix). After that, the subjects were asked the purpose of the experiment and thanked for their voluntary participation when handing in the questionnaire. Most importantly, the interviewee's physical gestures were not mentioned by the experiment subjects.

### **3.3 Results and discussion**

As predicated, the credibility of the self-description from the hand-over-chest man is rated significantly higher ( $M=42.41$ ,  $SD=9.876$ ) than that of the self-description from the man with arms at his sides ( $M=38.42$ ,  $SD=8.043$ ) ( $t(152)=-2.759$ ,  $p=.007<0.01$ ,  $d=.447$ ,  $r=.560$ ) (Table 2.1). This result is consistent with that in Experiment 1. Results from Experiment 1 indicate that the gesture of the “hand-over-chest” is perceived as a symbol to express the integrity and a symbol of highlighting the integrity personality. Experiment 2 hypothesized that if the man performing the gesture of “hand over chest” was perceived to be more honest, his statements in self-description would be rated more credible, even though those statements were self-flattered. The results from the present experiment prove that the gesture of the “hand-over-chest” enhances credibility in judgments from experiment participants about the gesture maker, but the same phenomenon does not exist in the case of the hand-at-sides man. The stereotype of a person is made based on his or her behaviors rather than the gender (Pratto & Bargh, 1991). Participants use the gesture of the “hand-over-chest” as a signal of integrity, and spontaneously incorporated this message into the meaningful impression of the credibility about words from the target gesture performer.

From the results of Experiments 1 and 2, the physical action of the “hand-over-chest” triggers the observers to form impressions of an integrity personality, such as “sincere”, “upright”, and “dependable”, of the gesture performer, and make them feel trust in the words from the gesture performer. The next experiment will go on exploring whether the gesture of the “hand-over-chest” will increase the gesture-performer's behavior of integrity or not.

Table 2.1 Credibility rating on self-description and difference the between two rating groups

Control Group (n=79)		Target Group (n=75)		<i>t</i>	<i>df</i>	<i>p</i>	<i>Cohen's d</i>	<i>r</i>
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
38.42	8.043	42.41	9.876	-2.759**	152	.007	.447	.560

Note: \*\*\* $P < 0.01$

## 4. Experiment 3: More Honest Behaviors Elicited from the Gesture Performers of the “Hand-Over-Chest”

### 4.1 Research aim and hypothesis

Experiment 1 and 2 have proved that the gesture of “hand-over-chest” has impacts on people’s perceptions. The present experiment will go further to exam whether or not the gesture of the “hand-over-chest” has impacts on people’s behavior.

Altruistic white lies refer to deceiving statements made by the speaker who intends to benefit the listener because the speaker is aware that the truth will bring negative effects to the listener and in turn, lying may lead to positive outcome (Broomfield, Robinson, & Robinson, 2002). So white lies are beneficial in harmonizing social interactions, maintaining interpersonal relationships and increasing prosocial behaviors. Experiment 3 is aimed at exploring whether or not the concept of integrity activated by the gesture of the “hand-over-chest” will decrease the use of white lies.

Hypothesis: When faced with the unattractive friends and relatives of the subjects’ teacher, the target subjects who put their hands over their chests have a lower degree of flattery and give more honest ratings than the control subjects who perform the gesture of the “hand over contralateral crotch”.

### 4.2 Method

#### 4.2.1 Subjects

166 Chinese current undergraduates voluntarily participated in the study ( $M_{age}=19.26$ ;  $SD=.97$ , Females=114, Males=52). Participants are all right-handed, with normal corrected eyesight, and none are color-blind. They were randomly assigned to the group of making target gesture of the “hand-over-chest” (107 people) (Picture 3.1) or the group of making the control gesture of putting a hand over the contralateral crotch

part (59 people) (Picture 3.2).

#### 4.2.2 Design and stimulant materials

The study adopts 4 (levels of attractiveness of subject in photograph: high vs above average vs below average vs low, within subjects)×2 (gestures: hand-over-chest vs hand-over-crotch, between subjects) mixed design. Two independent variables are respectively the levels of attractiveness about the photographed lady’s faces and gestures made by experiment participants (Picture 3.1 and Picture 3.2). The dependent variable is the rating of the attractiveness of lady’s faces. Study has shown that elevated arm movements will evoke positive evaluations while the opposite will evoke negative evaluations (Ansorge & Bohner, 2013). In order to eliminate the influence of high and low positions of the arm in the current study, the control gesture adopts the way of “placing hand over the contralateral crotch”.

Picture 3.1 Target gesture



Picture 3.2 Control gesture



Stimulant materials are sampled from 40 female headshot photographs downloaded either from an open-source database or contributed voluntarily by the investigator’s friends and relatives. These photographs were rated before the experiment by 143 current undergraduates ( $M_{age}=18.85$ ;  $SD=.64$ , Females=65, Males=78) on a 7-point scale with 7 being the most attractive and 1 being the least attractive. Based on the before-experiment rating, 4 groups of photographs with different levels of ratings were achieved: Group 1 (Low Group: the least attractive group) ( $M=1.80$ ,  $SD=.14$ ), Group 2 (Below Average Group) ( $M=2.62$ ,  $SD=.15$ ), Group 3 (Above Average Group) ( $M=3.51$ ,  $SD=.35$ ) and Group 4 (High Group: the most attractive group) ( $M=4.93$ ,  $SD=.38$ ). Representative photographs with the least mean differences in each group are sampled as the stimulant materials. A total of 18 photographs are chosen, with the Group 1 ( $M=1.80$ ,  $SD=.14$ ) and the Group 4 ( $M=4.93$ ,  $SD=.38$ ) each having 5 photographs selected and 4

selected from the remaining two groups.

#### *4.2.3 Research process and measurement*

As part of the study, subjects were informed that the aim of the study was to investigate the influence of cognitive load on the evaluation of appearances, and that “cognition load” referred to “performing some sort of gesture”. In the investigation process, subjects were requested to perform the gestures of either “putting the dominant hand over the chest” or “putting the major hand over contralateral crotch area”, and maintained the action while looking at the photographs of ladies’ faces on the computer screen (10 seconds/image). Participants, using their left hands, rated the attractiveness of the photographed lady’s faces in the corresponding boxes assigned with the number from 1 to 7, with 1 being the least attractive and 7 the most attractive. The instructions explicitly indicated that the “ladies in the photographs are your teacher’s long-term friends and relatives”. Most importantly, subjects did not suspect the hypothesis of the current study nor were the gesture of integrity and its social purpose mentioned.

### **4.3 Results and discussion**

As predicted, the gesture influences the evaluation of “unattractive” ladies. Attractiveness ratings of ladies were conducted by 4 (levels of attractiveness of ladies: low vs below average vs above average vs high, within subjects)  $\times$  2 (gestures: hand-over-chest vs hand-over-contralateral crotch, between subjects) ANOVA analysis. It reveals main effects for both the gesture factor ( $F(1, 663)=8.329, p<0.01$ ) and the factor of face attractiveness of photographed ladies ( $F(3, 663)=462.362, p<0.01$ ), but no main effect for interaction between two independent factors ( $F(3, 663)=.745, p=.526>0.01$ ) (Table 3.1). Further  $t$  analysis indicates the gesture influence on the ratings of most unattractive ladies. That is, the gesture of “hand-over-chest” significantly influences subjects to rate the attractiveness of the “least attractive” ladies ( $t_{(164)}=-3.359, p<.01, d=.504, r=.233$ ). Specifically, the rating from the hand-over-chest participants ( $M=1.630, SD=.646$ ) is significantly lower than that from participants of the “hand over contralateral crotch” ( $M=1.98, SD=.635$ ) (Table 3.2), and this significant difference cannot be found in the ratings of other levels of attractiveness of female faces because these participants do not have the motivation to give white lies. When having the opportunity to give white lies

about the least attractive ladies, the hand-over-chest participants are more honest in rating compared with the participants in the control condition. Thus, the hand-over-chest gesture eliminates the tendency to give white lies in this gesture-maker group, even though this means a little bit discourteousness to the teacher of the experiment participants.

Table 3.1 ANOVA of attractiveness rating and gesture

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between Cell	927.71	7	132.530	222.119	.000
Attractiveness of Lady's Faces	827.62	3	275.874	462.362***	.000
Gesture	4.95	1	4.950	8.296**	.004
Attractiveness BY Gestures	1.333	3	.444	.745	.526
(Model)	391.411	656	.597		
(Total)	1319.124	663			

Note: \*\* $P < 0.01$ , \*\*\* $P < 0.001$

The present experiment demonstrates that the activation of the abstract concept of integrity may arouse the differences in behavior. This result is consistent with the research results in Bargh, Chen, and Burrows (1996). That is, priming an abstract concept exerts an unintended, passive influence on the interpretation of behavior. In Experiment 1 of their study, participants whose concept of rudeness was primed interrupted the experimenter more quickly and frequently than participants primed with polite-related stimuli. The behaviors in social interaction, similar to the social perceptions and evaluations, can be driven by environmental stimuli preconsciously and automatically. The results of the present experiment show that passive, automatic activation of an abstract concept of integrity by the hand-over-chest gesture leads gesture performers to eliminate the tendency of telling white lies and honestly rate the perceived attractiveness of ladies.

Table 3.2 Differences of attractiveness ratings between two gesture groups

	Control Group (n=107)		Target Group (n=59)		<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Group 1	1.980	.635	1.630	.646	-3.359**	164	.001	.504
Group 2	2.559	.668	2.341	.748	-1.867	164	.640	.309
Group 3	3.263	.783	3.122	.753	-1.141	164	.256	.183
Group 4	4.980	.909	4.895	.883	-0.583	164	.561	.089

Note: \*\* $P < 0.01$

All in all, the current experiment shows that people are unconsciously led by the gesture of the “hand-over-chest”, and evaluate more truthfully according to what they feel, which results in the lowering in rating about the “least attractive” photographed ladies’ faces, and increasing their integrity-orientational behaviors.

## 5. General Discussion

Integrity is the cornerstone for people to establish strong interpersonal relationship in social interaction. It is so important that people always want to find the effective ways of exhibiting integrity so as to promote mutual trust quickly in the process of interaction. Integrity is defined as “honesty” and “adherence to credit” in *Modern Chinese Dictionary* (CASS, 2005, p. 174). The definition of integrity helps us little in perception and appreciation of it because the meanings contain little space-time experiential information. However, Lee (1984) indicates that a concept is a semiotic relation by means of which communication can be effected. The results in the present study fully testify that the hand-over-chest gesture as a symbol of integrity can influence people’s perceptions and behavioral responses about gesture performer. The hand-over-chest gesture is the symbolic gesture because it is used to represent the heart of integrity as the referent or the signified, arousing the mental perception of integrity personality about gesture maker which experiment participants use many integrity-related adjectives to describe and interpret in the context-free condition (Experiment 1). The hand-over-chest gesture as the externalization and realization of the internal integrity state arouses the mental perception in the specific contexts of

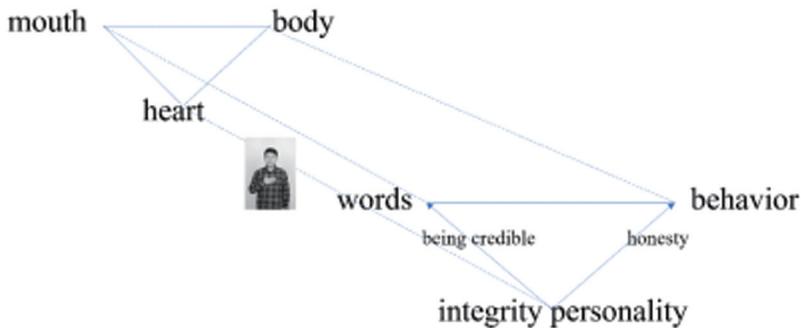
communication like job interview (Experiment 2) and white lies using (Experiment 3) which go further to affect gesture observers' judgments (Experiment 2) and gesture performers themselves' behaviors (Experiment 3).

### **5.1 Metaphorical mapping of the integrity concept**

The current study supports the Conceptual Metaphor Theory that certain features of abstract concepts are drawn from metaphorical mappings of concrete concepts (Lakoff & Johnson, 1999). The hand-over-chest gesture introduced in the current study vividly illustrates how abstract concept works cognitively based on the concrete elements in the daily social interaction. Research results in Leng and Wu (2016) indicate that the abstract concept of integrity is specifically based on the human body organs of heart, mouth and body. They are the concrete elements making up the characters of *chéng* (honesty) and *xìn* (credit) as well as the elements forming the integrity idioms, like *xīn kǒu rú yī* (say what one thinks), *shuō yī bù èr* (stand by one's word), etc. The abstract concept of integrity is formed based on the concrete conceptual elements, heart, mouth, and body. It clearly shows the cognitive motivations of Chinese ancestors when they created characters and idioms of integrity. That is, integrity relates to one's heart, and is expressed by one's mouth and body. However, as the physical bases for the integrity concept, the specific contents of heart, mouth and body are vague without the phenomena implying from the specific contexts. The hand-over-chest gesture involved in the current study is the symbolic and externalization of the heart of integrity, which is used to arouse the mental perception of integrity in the process of communication, specifying the heart of integrity and highlighting the intuitive integrity personality (Experiment 1) (see Figure 1), that is, with the help of symbolic gesture of the "hand-over-chest", observers could sense the integrity personality (Experiment 1). In the specific contexts, people, under the influence of the symbolic gesture of the "hand-over-chest", trust the flattered words from the job interviewee (Experiment 2) and honestly evaluate the attractiveness of the ladies (Experiment 3), realizing the metaphorical mapping from the dimensions of heart-mouth consistency and heart-body consistency to dimensions of integrity personality-words consistency and integrity personality-behavior consistency. In the daily interpersonal communication, accompanying gesture can assist in expressing internal states such as emotions, attitudes and values, pushing two sides of the communication

into deep interaction.

Figure 1. Metaphorical structure of the concept of integrity



The integrity is the consistency between heart and mouth and the consistency between heart and body (Leng & Wu, 2016), as the Chinese idioms of *xīn kǒu rú yī* (say what one thinks) and *biǎo lǐ rú yī* (consistent inwardly and outwardly) described respectively, indicating the meanings of honesty and adherence to credit in the definition respectively. With the help of the hand-over-chest gesture, the definition of integrity, honesty and being credible, can be directly perceived through metaphorical mapping from concrete concept to abstract one (see Figure 1). The hand-over-chest gesture as the integrity symbol in Experiment 2 mediates the metaphorical mapping from dimension of heart-mouth to the dimension of integrity personality-words, illustrating the meaning of “credible” about the integrity concept in the context of job interview. That is, if the job interviewee performing the gesture of the “hand-over-chest” is an integrity person, then his words must be trustworthy, even though his words are a little bit flattering in the context of job interviewing. The hand-over-chest gesture as the integrity symbol in Experiment 3 also mediates metaphorical mapping from concrete dimension of heart-body to the abstract dimension of integrity personality-behavior, illustrating the meaning of “honesty” about the integrity concept. That is, if the hand-over-chest performer is an integrity person, then he/she will have the behavioral tendency of being honest in the context of white lie using. The hand-over-chest gesture in two experiments realizes the structural congruency of metaphor between concrete concept and abstract concept. Many Social Psychology empirical studies have proven that abstract concepts such as morality acquire metaphorical

representation through the metaphorical mapping of concrete concepts where moral concepts retain key elements of concrete concepts, signifying the congruent effect of metaphors, such as the white-moral and black-immoral (Yin & Ye, 2014), up-moral and down-immoral (Wang & Lu, 2013) of moral concept. To a certain extent, the results in the current study proves the metaphorical representation structure of integrity in terms of structural dimensions of integrity personality-words and integrity personality-behavior, illustrating how people appreciate and understand the definition of integrity, honesty and being credible (see Figure 1). The metaphorical structure of integrity reveals that the concrete elements in integrity such as heart, mouth and body which are the key elements in real-life events of integrity, and the abstract elements such as integrity personality, words and behavior which are the situational information in the event. Studies have shown concrete concepts and abstract concepts share the same situational context. However, the two concepts have different situational information. The concrete concept contains vast amount of tangible (e.g. object, scenes, etc.) information, while the abstract concept contains mostly situational and emotional information (Barsalou & Wiemer-Hastings, 2005). With the symbolic gesture of the “hand-over-chest”, the metaphorical mapping is realized from the elements of the concrete concept to the elements of the abstract concept, presenting the meanings of honest and credibility in the definition of integrity.

## **5.2 Predictive function of the hand-over-chest gesture**

The current study supports the semiotic theory of signs. An object / concept represented by a sign can be interpreted differently. Which interpretant is focused on depends on the specific linguistic and physical contexts (Peirce, 2003; Lakoff & Johnson, 1980). In Experiment 1 of the present study, the sign of the hand-over-chest gesture is interpreted as “Please believe me”, “sincerity”, “being in good faith”, “trustworthiness”, “wholeheartedness”, “pure-heartedness”, “commitment”, and “I don’t cheat you”, all of which belong to the concept of integrity. The reason why the hand-over-chest gesture arouses so many interpretants lies in the condition that this gesture was presented in the non-specific context of Experiment 1. In the specific context of the job interview (Experiment 2), the same symbolic gesture of the “hand-over-chest” was interpreted as “being credible” because the job interview context highlighted the property of credibility. In the social context of the use of telling

white lies (Experiment 3), the hand-over-chest gesture was interpreted as “honesty” because white lies are the statements against the truth of facts. It is the integrity-related properties represented by the hand-over-chest gesture that influence the people’s perceptions and behaviors once the contexts fit with the uses of the gesture. This is supported by the evidences from the experimental studies. Automatic social behavior studies have shown that activation of certain conceptual structures in social interaction directly influence behaviors. Automatic activation methods include the typical scenario of structures (Bargh et al., 1996).

Besides the situation fact, which interpretant of a sign is focused also depends on the tasks the subjects face in the situation. Studies on social behavior norms have found out that situational hints activate schemas of the scene, and when the task aim matches the specific scene, people will adjust their behavior according to the social norm of the specific scene. In Aarts and Dijksterhuis’s (2003) study, target subjects who saw images of the library and then took a tour of the library, compared with the control subjects who saw images of the library but did not take a tour of the library, lowered their speaking volume to a greater extent in experiment. The research results of Experiment 2 and Experiment 3 in the current study illustrate that task hints also play the role in predicting the interpretant of the hand-over-chest gesture. In Experiment 2, the subjects were asked to evaluate the credibility about the statements delivered by the job interviewee who made the hand-over-chest gesture. In Experiment 3, the hand-over-chest gesture subjects were asked to evaluate the attractiveness about the least attractiveness ladies who were the close friends and relatives of subjects’ teacher. The task in Experiment 2 is the credibility judgment, while the task in Experiment 3 is the honesty behavior even though they have the opportunity of making white lies. Though the same gesture is involved in the two experiments, different task representations trigger different interpretants of the same symbolic gesture of integrity. It is the specific situation and clear task representations that cause people to develop prediction of the specific meanings of body movements (Barsalou, 2009).

Though the hand-over-chest gesture in the above three experiments were related to the concept of integrity, the task-matching experimental situations hint the subjects automatically to focus on the interpretants which fit the target tasks in relative situations. From the perspective of semiotics, social environment has an intuitive influence on the interpreting of the gesture in the process of communication.

### 5.3 Limitations and prospects of the current study

According to the findings of the current study, the gesture of the “hand-over-chest” as the symbolic gesture of the abstract concept of integrity has the implicit impacts on people’s judgments and behaviors. The integrity gesture of the “hand-over-chest” leads people to focus on the specific properties of being credible and honest about the concept of integrity in the specific interactive situations. Nevertheless, integrity is not just an abstract concept, it is also a moral concept. Further studies can focus on the upkeep or violation of integrity as a moral norm, as well as the moral behaviors of honesty and deception under temptation, to validate the impacts of the symbolic gesture of the “hand-over-chest”.

## 6. Conclusion

People are inclined to use concepts that they have personally experienced to construct abstract and complex concepts. The current study reveals that integrity can be expressed through somatic clue of the “hand-over-chest” gesture. The Chinese idiom “mén xīn zì wèn” has vividly described the physical movements during reflection as well as the accompanying internal state of being honest to oneself. Experiments in this study have shown that individuals performing the gesture of the “hand-over-chest” are regarded as the person of integrity, their statements of self-description are considered more reliable in the context of a job interview, and that they tend to tell fewer white lies though they realize it is sometimes impolite to tell the truth in the process of social communication. In brief, the gesture of “hand-over-chest” as a symbolic gesture influences the perception of integrity properties, the integrity judgment about others’ words and the actualization of the integrity behavior.

### Note

- 1 This paper is the research achievement of 2017 Jiangsu “Qinglan Project” Outstanding Teaching Team, “College English Teaching Team of Soochow University” (SR10400117).

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## Appendix

### Questionnaire for Evaluation of the Statements in the Self-Introduction of the Employee

请你评定应聘者自我描述语句的可信度，1表示可信度最低，7表示可信度最高。请你在认定的数字上打圈。

性别：\_\_\_\_\_ 年龄：\_\_\_\_\_

调查项目	可信度						
1 对于自己不知道的事，我会毫不介意地承认自己在这方面的无知。	1	2	3	4	5	6	7
2 有时我会非常坚持按自己的方式办事。	1	2	3	4	5	6	7
3 我总是健康饮食。	1	2	3	4	5	6	7
4 我乐意助人，会毫不犹豫的站出来帮助陷入困境中的人。	1	2	3	4	5	6	7
5 我总是接纳别人的意见，即使他们并不赞成我的。	1	2	3	4	5	6	7
6 我为人真诚，如果我许下承诺，我一定信守，绝不会找任何借口推托。	1	2	3	4	5	6	7
7 我总是待人友好，彬彬有礼，即使在压力很大时也不例外。	1	2	3	4	5	6	7
8 在交谈中我总是认真倾听别人所说的话从不会打断他们。	1	2	3	4	5	6	7
9 在争论中，我总是保持客观，就事论事。	1	2	3	4	5	6	7
10 我总是言出必行。	1	2	3	4	5	6	7
11 描写一下照片上的人的体貌特征：							

感谢你对本次调查付出的劳动！

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