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人性觀與教養行爲：中介歷程假說的 再檢視

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摘 要

本研究以智能教養行爲爲標的，探討影響教養行爲的認知因素，企圖解開教養觀無法預測教養行爲的謎團。研究者修正前此根據德行教養研究所形成的「中介歷程假說」成爲「中介歷程模式」，以智能可塑性信念做爲智能觀的指標，說理、賞罰、寬容三種取向做爲教養觀的指標，假想課業學習情境的管教方式做爲教養行爲的指標，並以三個預測來檢驗此模式：(一)教養觀不是真正的教養行爲指導原則，對教養行爲不會有足夠的預測力；(二)一般智能觀不直接影響教養者的歸因歷程，對教養行爲也不會有足夠的預測力；(三)真正對教養行爲有足夠影響力的是以一般智能觀及情境資訊爲基礎的權變智能觀，因爲它能直接影響歸因歷程。以525位大陸民衆爲對象的研究結果都符合了「中介歷程模式」的預測。

關鍵詞：人性觀、中介歷程模式、教養行爲、教養觀、智能觀

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From Beliefs about Human Nature to Parenting Behavior: The Mediation Process Model

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Abstract

The purpose of this study is to clarify the myth that parenting beliefs do not have sufficient predictive power for parenting styles. The attempt to take “beliefs about human nature” (belief about intelligence, belief about human morality, etc.) into consideration helped the development of the “mediation process hypothesis.” Efforts were made to explore how belief of human nature makes use of intervening variables, such as “attribution” and “belief of the effectiveness of parenting,” to influence inclination of parenting behavior. A total of 525 subjects participated in this experiment to answer the questionnaire focusing on the relationship of parents’ belief of intelligence and parenting behavior. “Parenting belief” and “general belief of intelligence” were measured by traditional self-report scale, while “contingent belief of intelligence” was measured in the form of simulated childrearing contexts, so as to highlight its “contingent” nature. Two contextual variables (learning performance and degree of hardworking) were manipulated in a 2×2 experiment design. All the research results echoed the main predictions of the “mediation process hypothesis”: (1) Parenting belief is not the

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guideline for practical parenting behavior. (2) The “general belief of intelligence” does not directly influence parents’ attribution of children’s performance as well as parenting behavior. (3) The real determinant of parenting behavior is the dynamic “contingent belief of intelligence” which varies with the practical parenting contexts and leads to different attribution as well as parenting implementation. Both present research and previous studies confirmed that “belief of human nature” has more important impact on actual parenting process than parenting beliefs. In a practical context, this belief of human nature will form a specific contingent belief of human nature according to the context information and further influence parenting behaviors via the attribution process.

Keywords: beliefs about human nature, beliefs about intelligence, parenting behavior, parenting belief, mediation process model

Introduction

In the past 40 years, considerable progress has been made in our understanding of the association between specific parenting style and particular child development. Research results have suggested that parenting behavior has a profound long-term influence on children's development (Frosch & Mangelsdorf, 2001; Ladd & Ladd, 1998; National Institute of Child Health and Human Development Early Child Care Research Network, 2004; Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994), and that children's behavioral development can be predicted from the parenting beliefs held by their parents (Andrew, Whigham, Hendrickson, & Chambers, 1999; Jacobs, 1991; Miller, Manhal, & Mee, 1991; Sigel, 1985; Wentzel, 1998). However, parenting beliefs have been shown to have only poor predictive power for actual parenting behavior (Bornstein & Cote, 2001; Perozynski & Kramer, 1999). These research results contradict commonsense and are thus controversial (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Goodnow & Collins, 1990; Sigel, 1985). What factors actually

guide parents' (or educators') behavior in educating children? Disagreements over the mechanisms behind parenting practice remain unresolved.

Some researchers believe that the confusing relation between parenting belief and parenting behavior may have arisen for two reasons: First, parenting beliefs is an ambiguous term. Sigel and McGillicuddy-De Lisi (2002: 497) sensibly pointed out that, "almost any question one asks a parent about their children has been classified as a belief". With such vagueness in the definition, crucial cognitive factors influencing parenting behaviors are hard to be clarified. Therefore, clearer concepts as parents' cognitions about children have replaced parenting beliefs in recent studies (Bugental & Johnson, 2000). Second, the relation between parenting beliefs and parenting behavior is very complex and presumably multifaceted and interactive, meaning that most statistical analyses based on a linear model are insufficient to reveal such complicated correlations (Sigel, 1985; Sigel & McGillicuddy-De Lisi, 2002). However, more studies are required to determine whether the low correlation between parenting beliefs and parenting

behavior is due to a multifaceted and interactive relationship or due to something else.

Using a clear definition of parenting beliefs as the reasons for or against corporal punishment, the author has conducted studies on this common parenting behavior in Chinese societies aiming at clarifying the relationship between parenting behavior and parenting belief (Lin, 1992; Lin & Wang, 1995). Results demonstrated that beliefs about corporal punishment explained only 10.6 percent of the variance in the actual corporal punishment behavior among parents and teachers. Instead, contextual factors such as the role in childrearing, or the number of children, were more reliably related to the use of corporal punishment. On one hand, educational background only influenced parenting beliefs about corporal punishment, but not parenting behavior; on the other hand, parenting behavior in terms of corporal punishment was affected by contextual factors rather than by parenting beliefs. Taken the results altogether, at least for corporal punishment, the dominant factor of parenting behavior is not parenting beliefs. It is the parental role responsible for child education (which in many

societies falls on the mother) and difficult situations confronted in parenting (such as having more children to look after) that incline parents to adopt harsh parenting.

Although the studies of corporal punishment echo previous findings and explain the low correlation between parenting beliefs and behavior, that parenting behavior is more influenced by contextual factors than parenting beliefs may not be the complete story. The question remains as to whether other cognitive factors may influence parenting behaviors as well. The author noticed that, many parenting beliefs reveal a viewpoint on the relation between humans and the environment and reflect the essence of a person's beliefs about human nature. For instance, "Tiger father does not breed dog son (Like father, like son)" corresponds hereditarianism, while "Strict teacher cultivates fine arts (Spare the rod spoil the child)" reflects environmental determinism. Apparently, there are implicit theories about human nature behind explicit parenting beliefs.

In many situations, what a person explicitly assumes to be a firm belief may be very different from what the person believes implicitly (Banse, Seise, & Zerbes, 2001; Greenwald, Banaji,

Rudman, Farnham, Nosek, & Mellot, 2002). In fact, the inconsistency between human behavior and self-acknowledged belief has long been observed in studies on attitude (Andrews & Kandel, 1979; Dibble & Straus, 1980; Schuman & Johnson, 1976). Thus, it is logical to assume that implicit beliefs about human nature maybe more influential on behavior than explicit parenting beliefs, and it would explain the low predictive power of parenting beliefs for parenting behavior. For instance, parents may believe that children should be treated equally and that good parents should not favor one child over another. They may believe themselves to be good parents. But, in everyday life, they may unconsciously favor the boy (or girl), or the child with better performance.

Why would implicit beliefs about human nature be more fundamental to parenting behaviors than explicit parenting beliefs? The answer is clear. Beliefs about human nature are related to a person's understanding of what people are and ought to be, while parenting beliefs involve technical presumptions about how to educate a person. They differ in two ways: implicit and explicit, as well as fundamental and technical. In

general, parenting beliefs are usually acquired from instruction and so are explicit and consciously available. In contrast, beliefs about human nature are implicitly derived from experiences in daily life and therefore may carry weight in guiding behavior, as shown in vast studies on instructional psychology (diSessa, 1993; McCloskey, Washburn, & Felch, 1983; Winer, Cottrell, Gregg, Fournier, & Bica, 2002) and dual-process cognitive theories (Chaiken & Trope, 1999; Sloman, 2002).

When a certain parenting belief cannot steer effective parenting behavior, the parent may be forced to abandon that parenting technique and turn to a more fundamental perspective on human nature. For instance, when a parent with humanistic parenting beliefs is faced with an extremely bullheaded child, the basic question, "Can this child's behavior be improved?" will inevitably arise. If this parent believes in high plasticity of human nature, he/she probably will adopt more proactive interference, such as changing the environment or parenting method. In contrast, if he/she believes that human behavior basically reflects an ingrained disposition, then tougher approaches to bridle the child may be

adopted. As a result, parents grope and adjust their behavior through specific childrearing contexts and so the real principles guiding parenting behaviors are belief about human nature rather than parenting belief.

Heyman and Gelman (2000) found that most people hold a nurture view of human morality and personality, but consider intelligence to be half nature half nurture. Similarly, Lin (2003a) found most parents consider the malleability of human morality to be high, personality moderate, but intelligence to be low. Consequently, there are at least three categories of beliefs of human nature to be considered and they should be examined separately with corresponding parenting context. For example, parents' beliefs about intelligence should be examined in parenting context for children's academic activity; beliefs about morality should be studied in parenting context for children's problem behavior, and so on.

A series of studies focusing on parents' and teachers' beliefs about intelligence indicated that both parents' and teachers' beliefs about intelligence may influence their attributions regarding children's learning performance and their

judgments about the effectiveness of education as well as their selection of appropriate parenting or teaching styles (Lin, 2003a, 2003b, 2004a). Another study focusing on morality has evidenced that beliefs about morality not only influence parenting behaviors, but also have greater predictive power than parenting beliefs (Lin, 2005). Integrating these results with the clear evidence that one's implicit theories about human nature can and do influence one's attributional process of person cognition (Dweck, Hong, & Chiu, 1993; Hong, Chiu, Dweck, & Sacks, 1997) and that parents' attribution affects their own confidence in the effect of parenting (Dix, Ruble, & Zambarano, 1989; Grolnick, Benjet, Kurowski, & Apostoleris, 1997), it is reasonable to hypothesized that beliefs about human nature has impact on parents' perceptions of children's behavioral performance, and accordingly may influence judgments about which parenting method is appropriate and effective, which in turn relates to various parenting behaviors.

In other words, attribution is the first-level influence of beliefs about human nature on parenting behavior. Through this attributional mediation

process, parenting behaviors may be confined in a certain range or tone. Although the agent of behavior, context, and referential information may all influence attribution according to the principle of covariance (Kelly, 1967, 1973), in the study on intelligence beliefs (Lin, 2003a) information about children's effort did considerably influence parents' and teachers' attributions, but not parenting behavior. Another study on morality beliefs also revealed that information about the coherence in children's moral behavior influenced parents' attributions, but not parenting behavior (Lin, 2005). Obviously, contextual information affects only the attribution process, while beliefs about human nature influence both attributions and parenting efficacy and thus are better in predicting parenting behavior. Based on above results, Lin (2005) proposed a mediation process hypothesis to explain the influence process of beliefs about human nature on parenting behavior via attribution as a mediator as follows:

Parenting behavior is actually a problem-solving strategy. The choice of parenting style is in part determined by parent's attribution of children's behavioral performance,

and in part, the parent's beliefs about the effectiveness of parenting. Beliefs about human nature intervene in the cognitive processes of attribution and effectiveness evaluation, and thus influence the selection of parenting behavior. In contrast, parenting beliefs cannot effectively affect the cognitive process, nor can they impose significant influence on parenting behaviors. (234)

Nevertheless, there is an intriguing result to be clarified before the mediation process hypothesis can be applied empirically. That is, in terms of the plasticity of intelligence, drastically different results have been obtained from interviews and questionnaires, respectively (Lin, 2003a). Interviewed parents considered intelligence unalterable while parents answered questionnaires believed in a high plasticity of intelligence. Apparently, beliefs about intelligence gauged by the self-report scale, similar to abstract attitude (Mickelson, 1989, 1990), were more conceptual and, can be labeled general beliefs about intelligence. On the other hand, beliefs revealed in interviews concerning specific parenting context are more implicit in nature, similar to

concrete attitude (Mickelson, 1989, 1990), are dynamic, continuously adjusting to experience and, can be labeled contingent beliefs about intelligence.

The dynamic interaction between general and contingent beliefs about intelligence has been appropriately demonstrated in previous study (Lin, 2003b). In the study, parents tended to attribute the poor performance of a child who did not work hard to this lack of hard work which corresponded to the fact that most parents held incremental view of intelligence. However, in contexts where a hardworking child received poor grades, two-thirds of the parents turned to attribute the poor performance to lack of ability. Obviously, information about the degree of a child's effort and the child's performance influence not only parents' attributions but also their general beliefs about intelligence. In one word, low effort/low achievement leads to effort attribution and high effort/low achievement directs to ability attribution. As the judgment varies with the contextual information it reflects a contingent belief in intelligence. It is the contingent beliefs about human nature that directly influence the mediation

process and act as a working hypothesis for parenting behaviors. Therefore, the mediation process hypothesis is revised and relabeled as the "mediation process model" in the present study. The theoretical relationship among general beliefs and contingent beliefs about human nature, parenting beliefs, and parenting behavior proposed by the mediation process model is indicated in Fig. 1.

In concrete, the mediation process model proposes that:

1. Parenting behavior is a contingent and dynamic problem-solving process. As a result, parenting beliefs abstracted from explicit instructions are likely to be less applicable in the ever-changing contexts of childrearing. In most contexts, parenting beliefs do not provide reliable guidelines for parenting behavior.

2. When certain parenting belief is challenged in a particular childrearing context, parents usually resort to basic beliefs about human nature to figure out a solution to problems at hand.

3. One's general beliefs about human nature are gradually formed in the developmental process of personal experience and subject to change into contingent beliefs with new experiences.

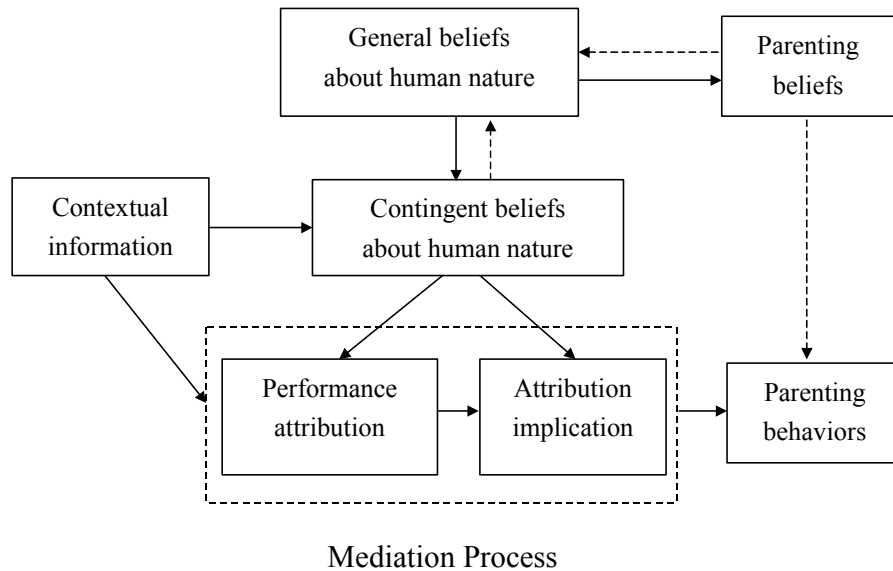


Figure 1 Conceptual Diagram of the Mediation Process Model*

*Solid lines indicate strong influence, broken lines indicate weak influence.

Every parenting experience is, in turn, a verification of one's beliefs about human nature.

4. Contingent beliefs about human nature function as parents' working hypothesis to frame the problem, that is, the attributions about children's performance and to figure out the practical implications of attribution, that is, the parenting behavior.

The purpose of the present study is to examine the theoretical relationship suggested so as to confirm the mediation process model in the first place. Using academic parenting as specific contexts, three specific predictions derived from the medication process model are tested:

H1: Parenting beliefs are not the major guiding principle for practical parenting. They do not carry much predictive power for parenting behaviors. H2: General beliefs about intelligence may not directly influence the attribution process, which regulates the choice of parenting behavior. Consequently, general beliefs about intelligence have little predictive power for attribution or for parenting behavior. H3: Contingent beliefs about intelligence may allow one to respond to different parenting problems with different attributions so as to lead to different parenting. As a result, they have significant influence on attribution and on parenting behavior as well.

METHOD

Participants

Participants were 525 enterprise employees in China's Shenzhen area between 17 and 78 years old with an average age of 26.3. The majority had either a junior or senior high school education. No differences were found in responses between parents (34%) and non-parents as well as between male (40%) and females, therefore the data were analyzed jointly. Questionnaires were answered collectively in tea breaks.

Measures

The questionnaire was composed of two self-report scales and four vignettes. The former were measures of beliefs about intelligence and parenting beliefs, the latter contingent beliefs about intelligence, performance attribution and parenting behavior.

Beliefs about Intelligence and Parenting Beliefs

General Beliefs about Intelligence. The measure entailed six statements, three representing the incremental view of intelligence (high plasticity) and three reflecting the entity view of intelligence

(low plasticity)(Appendix). Participants were asked to rate their agreement to each statement from 1 absolutely disagree, to 7 absolutely agree. The six statements were mixed with statements measuring parenting beliefs.

Contingent Beliefs about Intelligence. To manipulate academic performance (good/poor) and degree of hard work (good/no effort) of a sixth-grade target child, a 2×2 vignettes were designed as follows: (1) Xiao-Chiang/Xiao-Jeng is more interested in having fun than attending class. He loves watching television and reads comic books often. (1a) Xiao-Chiang never does well on exams and falls behind the class (no effort/poor performance). (1b) However, Xiao-Jeng has excellent grades in school (no effort/good performance). (2) Jun-Jun/Da-Ming is obedient at home, attentive in class, and serious about homework. (2a) However, Jun-Jun never does well on exams and falls behind the class (good effort/poor performance). (2b) Da-Ming has excellent grades in school (good effort/good performance).

After reading each scenario, participants were required to evaluate the relation between the child's academic performance and parenting on a seven-

point scale from 1 absolutely disagree, to 7 absolutely agree. In the poor performance contexts, the participants were asked: "Do you agree that if Xiao-Chiang's/Jun-Jun's parents make more effort to teach him, his academic performance can be improved?" In the good performance contexts, they were asked: "Do you agree that Xiao-Jeng/Da-Ming has an excellent academic performance because his parents know how to teach him?" The responses were indexes of contingent beliefs about intelligence in various contexts.

Parenting Beliefs. Three established categories of parenting styles: authoritarian, authoritative and permissive (Baumrind, 1991) which are also common parenting beliefs in Chinese societies (Lin, 2002) were used. Participants were asked to rate their degree of agreement with six statements (two for each parenting style) from 1 absolutely disagree, to 7 absolutely agree. Authoritarian parenting beliefs emphasize punishment and reinforcement: "Discipline turns talent into ability." "Punishment and reinforcement are most effective for education." Authoritative parenting beliefs emphasize the importance of reasoning with children:

"Punishment and rewards are only effective on children who can be reasoned with." "It is more important for a child to tell right from wrong than following rules." And permissive parenting beliefs maintain that indulgence or letting go is the best parenting: "Strategies for parenting are less necessary than allowing children more room and letting nature take its course." "Children can never be spoiled."

Performance Attribution and Parenting Behavior

To measure participants' performance attribution, they were asked to evaluate children's academic performance in four vignettes as due to disposition or hard work on a seven-point Likert scale from 1 absolutely disposition to 7 absolutely hard work, respectively. To measure parenting behavior, participants were required to imagine themselves as parents of the children described in the vignettes and select one parenting behavior from a list of seven to indicate which they would be the most likely to apply. The parenting behavior categories: corporal punishment, scolding, rewarding, changing the environment, encouragement, reasoning, and let-it-be used in the

present study were selected from the originally twelve categories in previous research with a criteria of response frequency above five percent (Lin, 2005).

RESULTS

Relation between Beliefs about Intelligence, Parenting Beliefs, and Parenting Behavior

Firstly, the author employed parenting behaviors as classification criteria so as to analyze whether participants demonstrating different parenting behavior hold different beliefs about intelligence or parenting beliefs. For simplification, parenting behaviors with a response frequency less than five percent were excluded. As a result, the number of parenting behavior categories differed in each vignette. General beliefs about intelligence, contingent beliefs about intelligence, and parenting beliefs were applied as dependent variables for the ANOVA. As shown in Table 1, except for the effort/ poor performance context [$F(3, 449) = 7.79, p < .001$], participants with different parenting behavior did not significantly differ in their general beliefs about intelligence. In contrast, in all four vignettes, participants with different

parenting behavior were significantly different in their contingent beliefs about intelligence [no effort/poor performance: $F(2, 463) = 3.92, p < .05$; good effort/poor performance: $F(3, 468) = 23.20, p < .001$; no effort/ good performance: $F(3, 471) = 17.72, p < .001$; good effort/good performance: $F(3, 483) = 3.20, p < .05$]. The results clearly implies that general beliefs about intelligence do not have a significant influence on parenting behavior except in particular context, while contingent beliefs about intelligence do influence the parenting behavior.

As for the influence of parenting beliefs, participants with different parenting behavior demonstrated a significant difference in authoritarian parenting beliefs in the contexts of good effort/poor performance [$F(3, 46) = 2.64, p < .05$] and no effort/good performance [$F(3, 468) = 3.04, p < .05$], as well as a significant difference in permissive parenting beliefs in the contexts of no effort/poor performance [$F(2, 458) = 3.38, p < .05$] and good effort/good performance [$F(3, 478) = 4.74, p < .01$]. However, in all contexts, participants with different parenting behavior did not demonstrate any significant differences in

Table 1 Correlation Between Beliefs about Intelligence, Parenting Beliefs, and Parenting Behaviors*

Context	Beliefs about Intelligence				Parenting Beliefs	
	General		Contingent		<i>F</i>	Sig
	<i>F</i>	Sig	<i>F</i>	Sig		
no effort/poor performance	.185	.831	3.922	.020	1.943 ^a .447 ^b 3.378 ^c	.144 .640 .035
good effort/poor performance	7.791	.000	23.201	.000	2.636 ^a .246 ^b 2.040 ^c	.049 .864 .107
no effort/good performance	.491	.689	17.721	.000	3.041 ^a .229 ^b 2.350 ^c	.029 .876 .072
good effort/good performance	.457	.713	3.201	.023	1.996 ^a 2.298 ^b 4.743 ^c	.114 .077 .003

*Categories for parenting behaviors with a response frequency over 5% in each of the 4 contexts are:

no effort/poor performance: changing environment, encouragement, consulting

good effort/poor performance: changing environment, encouragement, consulting, let-it-be

no effort/good performance: awarding, encouragement, consulting, let-it-be

good effort/good performance: awarding, encouragement, consulting, let-it-be

^a authoritarian, ^b authoritative, ^c permissive

authoritative parenting beliefs. It can thus be inferred from this result that: (1) authoritative parenting beliefs have no influence on parenting behavior at all, and (2) authoritarian and permissive parenting beliefs have impacts only in a few contexts. This result is consistent with prior findings that the influence of parenting beliefs on parenting behavior is rather limited.

In sum, the ANOVA test demonstrated that, firstly, general beliefs about intelligence have little influence on the parenting behavior. Secondly, parenting beliefs either had no influence on the

parenting behavior at all, or only had effect in a few contexts. Finally, contingent beliefs about intelligence had influence on the parenting behavior in all contexts. These results confirmed the relationship between parenting behavior and the three cognitive factors (general beliefs about intelligence, contingent beliefs about intelligence, and parenting beliefs) proposed by the mediation process model.

There are two important assumptions made by the mediation process model about the relations among these three cognitive factors. Firstly, beliefs about

intelligence and parenting beliefs may be rooted in different cognitive sources, yet beliefs about intelligence may influence acceptance of certain parenting beliefs. Therefore, the correlation between them, if any, should either be low or none. Secondly, contingent beliefs about intelligence are theoretically based on general beliefs about intelligence and adjust in response to the context. Hence, a correlation between the two should exist, but only to a low degree in all contexts. Results indicated in Table 2 suggested that, general beliefs about intelligence had a low negative correlation with permissive parenting belief ($r = -.139, p$

$< .01$) but no correlation with the other two parenting beliefs. In addition, general beliefs about intelligence had a positive but low correlation with contingent beliefs about intelligence under all four contexts (no effort/poor performance, $r = .126, p < .01$; good effort/poor performance, $r = .175, p < .01$; no effort/good performance, $r = .146, p < .01$; good effort/good performance, $r = .135, p < .01$). In one word, the results supported the relationship among general/contingent beliefs about human nature and parenting beliefs assumed by the mediation process model.

Table 2 Relation Between General Beliefs about Intelligence and Parenting Beliefs

	General Beliefs about Intelligence	Parenting Beliefs		
		Authoritarian	Authoritative	Permissive
General Beliefs about Intelligence	1	.078	.084	-.139*
Parenting Beliefs		1	-.006	.046
			1	-.001
				1

* $p < .01$

The Influence of Beliefs about Intelligence on the Attribution Process

According to the mediation process model, because general beliefs about intelligence do not directly influence the

attribution process, nor do they function as the guiding principle for parenting behavior, the correlation between general beliefs about intelligence and attribution would be none or low. On the other hand, parenting behavior is essentially influenced by contingent beliefs about

intelligence, which leads to different attributions depending upon the parenting problem and context, the correlation between contingent beliefs about intelligence and attribution should be relatively high. The results in Table 3 evidently support the two predictions. General beliefs about intelligence had no

correlation with attribution in good performance context and a low correlation (ranging from .1 to .2) in poor performance context. In contrast, a significant correlation was found between contingent beliefs about intelligence and attribution (ranging between .2 and .4) in all contexts.

Table 3 Correlation Between Beliefs about Intelligence and Performance Attribution

Beliefs about Intelligence	Performance Attribution			
	no effort/poor performance	good effort/poor performance	no effort/good performance	good effort/good performance
General	.090*			
Contingent	.379**			
General		.184**		
Contingent		.371**		
General			-.007	
Contingent			.197**	
General				.081
Contingent				.235**

* $p < .05$ ** $p < .01$

The Influence of Contextual Information on Attribution

According to above analysis, it is the objective contextual factors of childrearing and subjective personal factors that jointly determine the cognitive processes underlying parenting behavior. As shown in Figure 1, the mediation process model suggests that contextual information would influence parents' attributions about children's performance, just like contingent beliefs about intelligence.

In this study, the contextual factors referred to the child's degree of effort and academic performance. As shown in Table 4, the influence of contextual information on attribution is highly significant [$F(3, 2982) = 752.72, p < .001$]. When the child's degree of effort corresponded to the resulting performance (i.e., no effort/poor performance or good effort/good performance), participants were inclined to attribute the result to effort. In contrast, when the child's degree of effort did not correspond to the

Table 4 Participants Performance Attribution Responses in Different Contexts

	no effort/poor performance	good effort/poor performance	no effort/good performance	good effort/good performance
Average	5.91	3.75	2.96	5.32
Median	6.00	3.00	2.00	6.00
Participants	520 (5) ^a	515 (10)	514 (11)	516 (9)
F	752.717*			

^ainvalid sample indicated in parentheses

* $p < .001$ $df = 3, 2982$

performance (i.e., good effort/poor performance or no effort/good performance), participants were inclined to attribute the results to intelligence.

CONCLUSION AND DISCUSSION

The mediation process model was developed from a series of studies that attempted to make sense of the low correlation between parenting beliefs and parenting behavior. The attempt to expand the scope of cognitive factors that affect parenting behavior paved the way for taking implicit beliefs about human nature into consideration. Based on subsequent studies of exploring how beliefs about human nature relate to intervening variables, such as attribution and its practical implication of parenting behavior, the mediation process model was proposed. The present results generally supported the main assumptions of the model about the relationship among

general beliefs and contingent beliefs about human nature on the one hand and parenting beliefs on the other. Firstly, significant correlation was not found between parenting beliefs and general beliefs about intelligence, except for permissive parenting beliefs. This result suggests that general beliefs about intelligence and parenting belief may be rooted in different cognitive sources, yet belief of intelligence might influence one's acceptance of certain parenting beliefs. The low negative correlation between general beliefs about intelligence and permissive parenting beliefs demonstrated that beliefs of low intelligence plasticity paved the way for 'let go' parenting beliefs. Secondly, data supported the prediction that contingent beliefs about intelligence are derived from general beliefs about intelligence, since a low correlation was found between these two beliefs in all contexts. Last but most importantly, of the three

cognitive factors, contingent beliefs about intelligence obviously have the greatest predictive power for parenting behavior.

Also, current research results provided explicit data to account for how beliefs about intelligence influence parenting behavior through the mediation process. Participants' attributions about the child's performance had a stable correlation with contingent beliefs about intelligence, while a less stable correlation with general beliefs about intelligence. It is not general beliefs but contingent beliefs about intelligence that influence parents' attributions, and which in turns affect the predictive effectiveness of parenting and serve as the cognitive framework for the selection of parenting behavior.

In answering the long-held question why parenting beliefs do not have sufficient predictive power for parenting behavior, the present study shared with previous research in demonstrating that beliefs about human nature may have a greater impact on actual parenting behavior. Besides, contextual information joins contingent beliefs about intelligence in affecting attribution but not parenting behavior. Beliefs about human nature respond to contextual information and

thus they can apply to specific childrearing context and influence parenting behaviors via the attribution process. The present study provides a model to analyze the cognitive factors underlying parenting behaviors. It also has given evidence for the attributional process through which the implicit beliefs about human nature may influence parenting behavior. The mediation process model developed here has heuristic value. It suggests why so little is known about what are the determinants of parenting behavior and specifies questions that need to be addressed if knowledge of parenting behavior is to increase. However, further research on the role of other aspects of implicit beliefs about human nature (morality and personality) in corresponding parenting contexts would be of great importance to validate the generality of this model.

Finally, based on the present research the author would to address several caveats in educational implementation. First, we should not only stress the importance of educational goal and method when preparing parents or teachers but also foster the understanding of the impact of beliefs about human nature on actual parenting behavior.

Second, overly simplified attribution of children's performance (especially to lack of intelligence) may result in inadequate parenting behavior. Therefore, the principle, deriving more from our values than from the research, to attribute children's performance to effort so that they may not feel helpless, is desirable. Third, we need to understand that research alone does not produce good parenting or education. The imagination of educators must supplement research finding and principles.

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Appendix

Measure of General Beliefs about Intelligence

Inflexibility of intelligence

Capability is innate, not acquired through learning.

Everyone's gift is different, and it is very difficult to change.

Hard work does not allow a person deficient in talent to perform well.

Plasticity of intelligence

Ideal education and environment may eliminate differences in natural-born abilities.

Talent is gained through experience.

A good environment may turn a fool into a wit.
