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# Relationships of Parents' Theories of Intelligence With Children's Persistence/Learned Helplessness: A Cross-Cultural Comparison

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## Abstract

The present study employed the learned helplessness paradigm to explore the possibility that culturally based parent beliefs influence the way in which young children approach academic tasks. Children, aged between 7 and 8 years, from New Zealand, the United States of America, China, and Japan participated in three different school-related tasks. Each of the tasks contained three levels, varying from easy to hard. Success was prevented for the medium and hard levels, allowing for exploration of child reactions to failure. The results revealed that parental support of the incremental theory of intelligence was indirectly and positively related to high child persistence in the Asian culture. Furthermore, parents' reports of their own reactions to frustrating events and efforts to encourage their children operated as mediators in both cultures, although in somewhat different ways between the Asian and Western cultures.

## Keywords

learned helplessness, cultural comparisons, parent and child, persistence

Academic achievement is highly valued in both Western and Asian cultures (Hess, Chang, & McDevitt, 1987). Since a number of studies have shown over the last several decades that Asian students (and Asian immigrant students in Western countries) academically outperform Western students (Chen & Stevenson, 1995), a great deal of attention has been devoted to identifying the reasons for this difference. It has been suggested that one reason is the way that Asian students, particularly Chinese and Japanese students, approach skill development and academic achievement and the value they place on effort and persistence (Hau & Salili, 1991; Rao, Noely, & Sachs, 2000; Shimahara, 1986). The present study sought to determine whether cross-cultural differences between Asian and Western children and parents could be documented as a way to

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substantiate the view that culturally based beliefs guide and shape how young children approach academic tasks.

The framework that we used to approach this question was the learned helplessness paradigm developed by Dweck over the last several decades (e.g., Dweck, 1999). The beliefs and values of Asian parents concerning their children's acquisition of academic skills and knowledge seem to be very similar to those underlying what Dweck refers to as the "incremental theory of intelligence" (Dweck & Leggett, 1988). The incremental theory states that intelligence (or more broadly, knowledge and academic skills) can be increased and developed through learning, practice, and effort. The incremental view has been linked to increased academic motivation, persistence in the face of failure (termed "mastery orientation"), and ultimately greater academic achievement (Elliott & Dweck, 1988; Mueller & Dweck, 1998). Within Western culture another view concerning the root cause of academic achievement has been described by Dweck: namely, a focus on intelligence as a fixed, stable entity termed the "entity theory of intelligence" (Dweck & Leggett, 1988). The entity theory has been found to be predictive of learned helplessness, which encompasses behaviors including increased negative affect, decreased persistence, and denigration of ability following failure (Dweck, 1999). Failure is interpreted by someone who holds an entity view as a sign of a lack of intelligence. As a consequence, he or she becomes focused on achieving successful outcomes (e.g., passing a test) rather than learning (Diener & Dweck, 1978; Elliott & Dweck, 1988; Mueller & Dweck, 1998).

## Parents

Eccles, Wigfield, and Schiefele's (1998) influential review of child academic achievement accords an important place for parental effects. Their model states that parental beliefs, expectations, and behavior influence the academic motivation of children, and a host of other researchers echo this position (Heyman, Dweck, & Cain, 1992; Pomerantz & Dong, 2006; Smiley & Lee, 2005). Hundreds of studies have documented the fact that parental characteristics are associated with child academic outcomes (Wigfield, Eccles, Schiefele, Rosser, & Davis-Kean, 2006), but what needs further work is exploration of the mediators between parental and child variables. Surprisingly little research has been conducted on the matter of how parental theories of intelligence predict child outcomes, and that is the focus of the present research. It is possible that part of the parental influence on children occurs through the transmission (explicit teaching and/or modeling) of parental theories of intelligence to children's persistence behavior.

Elliot and Thrash (2004) have reported that fear of failure, which can elicit avoidance behavior, is often passed from parent to child. They found that the relationship between parent and child fear of failure was mediated through parental love withdrawal, which suggests that parental beliefs can manifest themselves through parent behavior. It may be, then, that children observed and imitated the behavior of their parents. Hokoda and Fincham (1995) observed that child motivation can be influenced and modified by the way that parents react to child difficulty. Mothers of mastery-oriented children encouraged their children to persist, offered support, and taught these children new strategies. In contrast, mothers of performance-oriented children were much less responsive, offered less help, and encouraged their child to quit when a task seemed too hard (Hokoda & Fincham, 1995).

Ames and Archer (1987) reported that mastery-oriented mothers emphasize the importance of challenging tasks that encourage learning and the role of effort in achievement. However, performance-focused mothers were more concerned with child grades and tasks that promoted success. In this vein, Kamins and Dweck (1999) have found that helpless and mastery responses can result from certain types of criticism children receive from their parents. For example, helpless children were reported to expect person-oriented, rather than task-oriented, criticism from

parents following poor performance. As another example, some parents express helpless patterns of behavior themselves, which appear to be mirrored in their children (Hokoda & Fincham, 1995). Cole, Warren, Dallaire, Lagrange, Travis, and Ciesla (2007) have noted that learned helplessness in kindergarten children is predicted by parental stress levels and harsh parenting styles. These findings suggest that parental behaviors and attitudes might mediate between parental theories of intelligence and child behavioral outcomes. Thus, one chief aim of the current research was to investigate the influence of parent theories of intelligence and behavior on children's reactions to success and failure, and a second was to examine whether parental encouragement of children and parent reports of their reactions to frustrating situations were mediators of this relationship.

### *Cross-Cultural Comparisons of Learned Helplessness*

Although the existence of learned helplessness has been widely established within European American cultures, little research has explored learned helplessness in samples outside of North America (Peterson, 1995). The research that has been conducted suggests that while learned helplessness is similarly manifested in other cultures, including Germany (Ziegler, Finsterwald, & Grassinger, 2005), Australia (Craske, 1985), South Africa (Nenty & Ogwu, 2009), Hong Kong (Au, Watkins, & Hattie, 2010), and the Netherlands (De Bruyn, Dekovic, & Meijnen, 2003), this may not be the case for all cultures. For example, Storey (2008) has found evidence that bicultural Native Americans experienced less frustration in the learned helplessness paradigm than marginal or traditional Native Americans.

Of particular interest to the current investigation is the prevalence and manifestation of learned helplessness in Asian cultures as compared to Western cultures. Specifically, the present research was directed at examining learned helplessness in Chinese and Japanese cultures as contrasted with the American and New Zealand cultures. Previous research has revealed that the Chinese and Japanese cultures hold similar beliefs about intelligence and effort (Holloway, 1988; Rao et al., 2000). Thus, in the present study, data gained from both of these two countries were combined to create a larger cultural group. Also it was thought that New Zealand and American cultures would also hold similar beliefs about intelligence to each other. Western culture tends to conceptualize skill and knowledge acquisition in a different way to the Asian culture (Chao, 1996; Chen & Stevenson, 1995), so it is of interest to compare the prevalence and manifestation of learned helplessness between these two broad cultural groups.

It has been widely recognized that Asian students and immigrants achieve at higher academic levels than their American-born peers (Chen & Stevenson, 1995; Stevenson, Lee, Chen, Stigler, Fan, & Ge, 1990; Tseng, 2004). Asian American students also evidence higher academic motivation, and according to Tseng (2004), this is due in part to an increased feeling of family obligations. High academic achievement of Asian students has also been attributed to an increased emphasis on effort within these cultures (Lay & Tsai, 2005; Rao et al., 2000). Confucian doctrine places great importance on the role that effort plays in achievement, and the internalization of these ideas has been linked to increased academic achievement in Asian children and adolescents (Chen & Stevenson, 1995). Diligence and effort are highlighted as the path to academic success (Rao et al., 2000). Furthermore, effort is viewed as a moral principle, while laziness is seen as immoral (Cheng, Lay, & Tseng, 2005). Chinese students are taught to work hard, even when the probability of success is low, and to take responsibility for their academic achievement (Hau & Salili, 1991).

Research exploring the Japanese population has revealed similar cultural effects to those of Chinese populations. Japanese society also places a high value on effort as well as perseverance (Holloway, 1988). Shimahara (1986) avers that there is a Japanese cultural tendency to focus on

the process rather than the outcome, resulting in an increased focus of the education system on enhancing learning, motivation, and work habits. It is believed that all children are capable of developing the ability to learn well. This belief leads Japanese parents and students to attribute achievement to effort (Shimahara, 1986). Furthermore, because all children are capable of developing high intellectual ability through effort, schools avoid grouping students based on ability and ignore IQ scores (Shimahara, 1986).

Not only do Asian parents endorse effort as a desirable behavior, but Asian students also express a belief that effort is important in attaining high achievement or success (Hau & Salili, 1991; Rao et al., 2000). Lee (1996), for example, has stated that:

there is an extraordinary emphasis on effort, willpower or concentration of the mind in the Confucian tradition. Because there is a strong belief in attainability by all, there is also a strong belief that one's failure is not due to one's internal make-up or ability, but one's effort and willpower. (p. 39)

Both Asian parents and students have high expectations for child achievement, and Asian students spend significantly more time studying outside of school than do their American peers (Chen & Stevenson, 1995). Chen and Stevenson (1995) conclude that it is the beliefs and attitudes of Asian students and their parents that result in high academic motivation and achievement. The beliefs of Japanese and Chinese parents documented in various studies seem to be very similar to those described in the incremental theory of intelligence.

At the same time, academic achievement is also highly valued within Western cultures (Dweck, 2006; Eccles et al., 1998). The Protestant ethic postulates that success is achieved with strong effort and hard work, and many Westerners have adopted this directive as their guideline for how to approach achievement situations. However, Dweck (1999) has noted that within American samples, some adults and children attribute academic success at least partly to innate ability (i.e., genetics), so it is possible that the role that effort plays in achieving these successes may not be as strong for this culture as for Asian cultures. Although some preliminary cross-cultural work (Zhou, Kwok, & Bond, 2009) has been performed on the link between reward for application (effort) and academic achievement, the present authors are unaware of any quantitative study comparing relative frequencies of effort versus ability explanations for academic achievement between Asian and Western cultures. Consequently, we are not able to base our present predictions on empirical findings; instead, we are chiefly relying on theoretical stances and qualitative observations. In this vein, Stankov (2010), in a review on this topic, has said that individuals from Confucian cultures hold "the belief that effort rather than ability is the primary source of success" (p. 555) compared to those in Western and European cultures. Against this diverse backdrop of theorists and piecemeal studies, it can be conjectured that the entity theory of intelligence might be more relevant and learned helplessness more prevalent within Western culture, whereas the incremental theory might be more important in explaining the achievement motivation of Asian children.

### *The Goals of the Present Study*

The current study was designed to explore the similarities and differences in the prevalence and associations among the beliefs and behavior relevant to persistence and learned helplessness by 7- and 8-year-old children and their parents in Asian and Western cultures. Parents were asked to complete questionnaires assessing their theory of intelligence, their own reactions to frustrating situations, and how they interact with their child when he or she is working on a difficult task. The child participated in a learned helplessness paradigm in which he or she experienced

easy, medium, and difficult tasks that resulted in successes and failures. The child was asked about his or her feelings concerning these outcomes, and their answers were coded as a single measure of the bipolar construct of persistence versus learned helplessness.

The first aim of the current investigation was to explore the differences in the incidence of persistence/learned helplessness across cultures. The first hypothesis was that Asian parents would report more support for the incremental view of intelligence, more persistent behavior of their own, and higher encouragement of children. In contrast, Western parents were expected to report more support for the entity view, higher levels of expressed frustration, and less encouragement of children (Chao, 1996). The second hypothesis was that Western children (American and New Zealanders) would display more helpless/less persistent behavior than children in the two Asian cultures (Japanese and Chinese) (Dweck, 1999; Hess et al., 1987). No age or gender differences were expected to be revealed for the current sample.

The second aim of this investigation was to better understand how parental views, values, and behaviors predict children's persistence/learned helplessness. The third prediction was that we expected that parent endorsement of the incremental theory of intelligence would be a positive predictor of child persistence/learned helplessness, and parent endorsement of the entity theory would be a negative predictor of child persistence/learned helplessness. Furthermore, the relationships between parent theories of intelligence and the child outcome were expected to be mediated through parent reactions to failure and parent encouragement (Elliot & Thrash, 2004; Nolen-Hoeksema, Wolfson, Mumme, & Guskin, 1995); in particular, the fourth hypothesis was that parental incremental views would be positively related to parental persistence and parental encouragement and negatively related to parental reports of frustration, and these in turn would predict children's persistence. In contrast, parental endorsement of entity views should be negatively related to parental reports of persistence and encouragement and positively related to parental reports of frustration, and these in turn should predict children's persistence. And last, a review of previous literature does not allow for the development of hypotheses regarding cultural differences in the strength of specific relationships between parent and child variables; however, for Hypothesis 5, we thought that the incremental theory of intelligence would be more important in explaining persistence for the Asian culture, and in contrast, the entity theory was expected to be more influential in the Western culture.

## Method

### *Participants*

Data were collected from 197 children and parents living within New Zealand, the United States of America, the People's Republic of China, and Japan (see Table 1 for demographic information). All children were aged between 7 and 8 years old, and on the critical variables of age and gender, these four samples were very similar. This age group was selected because academic motivation is a salient issue for children of this age (Bempechat, 1991), and this age range is one that is typically studied in regards to academic motivation (e.g., Cain & Dweck, 1995; Hokoda & Fincham, 1995).

The New Zealand sample was collected from four urban schools within the city of Wellington. This sample was made up of 55 children (21 seven-year-olds and 34 eight-year olds) and one parent of each child. All but one of these children had attended a preschool. Only one child included in the New Zealand sample was not born in New Zealand. The ethnic breakdown of this sample was 71% European New Zealanders, 11% Asian New Zealanders, 4% Maori Pacific Nations, 6% Pakeha Pacific Nations, 3% Pakeha Maori, 3% Pacific Nations, and 3% Other. This sample contains a higher proportion of Asian New Zealanders and slightly fewer Maori participants than is seen in the total population.

**Table 1.** Demographic Variables for Participants

Country	No. of Participants	7-Year-Olds			8-Year-Olds		
		Male	Female	Total	Male	Female	Total
New Zealand	55	15	11	26	14	15	29
America	39	12	11	23	7	9	16
China	46	12	12	24	10	12	22
Japan	57	19	17	36	11	10	21

Country	Mean Age		No. of Parents			
	7-Year-Olds	8-Year-Olds	Mothers	Fathers	Siblings	Preschool (Years)
New Zealand	7.4	8.4	49	6	1.3	2.9
America	7.4	8.3	37	2	1.7	2.1
China	7.5	8.2	34	11	0	3.6
Japan	7.5	8.6	50	5	1.4	3.8

The American participants included 39 children and 39 parents. Twenty-three 7-year-old and sixteen 8-year-old children were gathered from three schools located within the northern suburbs of Chicago, Illinois. The ethnic makeup of this sample was 70% European American, 25% Asian American, and 5% Hispanic American. The ethnic makeup of the American sample was not typical of the national population as it did not include any African American participants and it had a higher percentage of Asian American participants.

The Chinese participants were gained from schools within the urban setting of Beijing. The Chinese sample consisted of 24 seven-year-old and 22 eight-year-old students. The ethnicity of all children within this sample was identified by parents as Chinese. Finally, the Japanese sample was composed of 36 seven-year-old children and 21 eight-year-old children, obtained from the city of Matsuyama. The ethnicity of all children within this sample was reported by parents as Japanese.

The four samples differ somewhat on the reported demographic variables. The ethnic makeup of the Western samples is more diverse than the Asian samples, and this fact reflects the multicultural nature of New Zealand and America. In addition, none of the Chinese children reported having siblings, which was the result of the "one child" policy in the People's Republic of China. Although it is desirable to gain samples that are comparable across various demographic variables, this was logistically impossible to achieve in the present case for all variables because we collected data from four very different countries.

## Materials

The data used in this research were gained from parental questionnaires and observations of children participating in the learned helplessness protocol. Questionnaires were sent home to parents, via their children, from schools. Parents were asked to complete the questionnaires, sign a consent form for their child, and return them to the experimenters. The questionnaires were originally written in English and then translated into the Chinese and Japanese languages by bilingual speakers. They were then back-translated by other individuals, and the original and the back-translated versions were compared. Minor differences in phrasing and vocabulary were reconciled by the two translators.

**Questionnaires.** Parents were asked to complete three questionnaires designed for the present study that assessed (a) parental reports of reactions to frustration, (b) parental reports of their own reactions to the child's frustration, and (c) parental beliefs about intelligence. Parents also provided demographic information about their child and family. Parents also reported their educational attainment, job status, and languages spoken in the home.

(a) *Parent reports of their own reactions to frustrating events.* This questionnaire included 20 items scored on a 5-point Likert-type scale (1 = *never felt this way* to 5 = *always felt this way*). Parents were asked to recall three frustrating events they had encountered and to consider how they had responded in those situations when answering the questionnaire. Items included "I gave up trying to finish the task because it was impossible" and "I remained calm and unemotional." For a complete list of all items and measures, please contact the first author.

(b) *Parental responses to child frustration.* This questionnaire measured how parents respond to their child when he or she has encountered frustration. The questionnaire contained 16 items measured on a 5-point Likert-type scale. Items included "Encourage him/her to keep on working until he/she has succeeded" and "Do what I can to make the task easier."

(c) *Attitudes About Intelligence Scale.* This questionnaire was designed by Dweck (1999) to measure parental theories of intelligence. The measure allows the parent to endorse items tapping the entity and incremental theories of intelligent. An example of an item measuring entity beliefs is "To be honest, you can't really change how intelligent you are." An item measuring incremental beliefs was "How much you practice determines how successful you are." The questionnaire consisted of 20 items measured on a 5-point Likert-type scale. Ten items measured entity beliefs, and 10 items measured incremental beliefs.

### *Learned Helplessness Protocol*

After being brought to a quiet room, children were asked to participate in three different tasks. These tasks were loosely based on the puzzle task used by Cain and Dweck (1995) to assess learned helplessness in young children. Cain and Dweck's (1995) task involved giving children three unsolvable puzzles followed by one solvable puzzle. Following all four puzzles, children were asked which one they would like to try again and why. In the current study, children were asked to work on three different puzzle-like tasks (Memory, Wooden Pattern Blocks, and Construct-O-Straws). We hoped that using three tasks instead of one would provide more reliable and valid data than would be obtained from just a single task. These three tasks were school-related in that they assessed school-relevant abilities including memory, spatial reasoning, and task sequencing.

Within each of the three tasks the child encountered three increasingly levels of difficulty (low, medium, and hard). The first level—low difficulty—was easy and all children were guaranteed success. The second level was of medium difficulty, and all children were ensured of failure due to a time limit that prevented them from finishing the task (90 seconds). The third level was of hard difficulty, and all children also failed this task because of its complexity and time limit (2 minutes). The experimenter held a stopwatch and glanced at it frequently during the child's attempts to solve the puzzle. On the latter two tasks, if a child appeared to be close to finishing the task within the given time limit, then their available time was covertly cut short, and in these few cases children were apparently not aware that they were not given full time. The order of difficulty was always easy, medium, and hard for all three tasks. Children were not told of the difficulty of the tasks, but they were made aware of the time limits in each case.

**Memory.** This game involves a set of picture cards in which there are pairs of cards for each picture. Children are presented with a set of cards containing a certain number of matched pairs placed face down on the table in front of them. Children were asked to form pairs of matching

cards by turning over two cards at a time. If the two cards match, then they are placed to the side. If they do not match, then the two cards are returned to their face down position and the child selects two more cards to reveal. On the easy level, children were given four pairs of cards to match, the medium level involved matching 10 pairs, and the final level contained 12 pairs.

**Wooden Pattern Blocks.** Children were presented with a box of small two-dimensional wooden shapes as well as the outline of one of three pictures. They were asked to fill in the outline with the provided wooden shapes. The outline presented on Level 1 was that of an arrow, Level 2 involved filling the outline of a horse, and a flower in a pot was the Level 3 picture.

**Construct-O-Straws.** For this task, children were given a previously constructed model that had been built out of hollow plastic straws and plastic connector pieces. In addition, they were given a pile of straws and connector pieces required to replicate the model. The participants were asked to replicate the experimenter's model exactly, using pieces provided to the child. The model used for the first level was a flower made up of three petals. Level 2 required the construction of a dog, and on the final level, children were asked to replicate a model of a man skiing.

### Data Reduction

Factor analysis was conducted on the three parent questionnaires: Parent Reactions to Frustration, Parent Responses to Child Frustration, and the Attitudes About Intelligence Scale. Factor analysis was also conducted on the self-report items that constituted the measure of persistence/child helplessness. These factor analyses were performed to reduce the number of measures and to create homogeneous variables.

**Parent reactions to frustrating events.** A principal components factor analysis with varimax rotation was conducted on the 20 items contained in the Parental Reports of Own Reactions to Frustration scale. The factor analysis on this questionnaire suggested, on the basis of the scree plot, examining correlations among and internal reliabilities of the derived factors, and parallel analysis that two factors existed within these items. The first of these factors measured persistent parental behavior. The seven items included statements such as "I kept trying because I was convinced I could succeed" and "I saw the task as challenging and interesting." The internal consistency for this subfactor on the entire sample was acceptable (Cronbach's  $\alpha = .72$ ). At the country level, the internal consistency was consistently good across the four countries ( $\alpha = .71$  for New Zealand, .76 for China, .81 for Japan, and .80 for the United States) and for the Asian and Western cultures as well ( $\alpha = .80$  and .75, respectively).

The second subfactor within this questionnaire measured parental expressions of frustration. It contained eight items, which included "I expressed emotions of frustration" and "I yelled at somebody else because of my frustration." For the entire sample, the internal consistency for this factor was acceptable (Cronbach's  $\alpha = .76$ ) and remained acceptable for the four separate countries ( $\alpha = .79$  for New Zealand, .71 for China, .76 for Japan, and .72 for the United States) as well as the two broad cultures ( $\alpha = .71$  for Asian and .77 for Western parents).

**Parental reports of responses to child frustration.** A principal components factor analysis with varimax rotation was conducted on the 16 items of the Parent Responses to Child Frustration questionnaire. These items assessed what parents taught their child about how to deal with difficult or frustrating tasks. Only one factor was found within this questionnaire. This factor measured parental encouragement of children and displayed high internal consistency for the entire sample (Cronbach's  $\alpha = .84$ ). The 10 items that made up this factor included "Encourage him/her to keep on working until he/she has succeeded" and "Offer encouragement and emotional support." The internal consistency was acceptable for each of the four countries ( $\alpha = .71$  for New Zealand, .85 for China, .81 for Japan, and .77 for the United States) and for the Asian and Western cultures as well ( $\alpha = .90$  and .76, respectively).

*Parent Attitudes About Intelligence Scale.* A principal components factor analysis with varimax rotation was conducted on the 20 items of this scale. We sought to verify whether splitting the items of this questionnaire into two clusters based on the theory of intelligence was merited. The factor analysis supported the predicted division of the items. The first factor measured parental support of beliefs underlying the entity theory of intelligence and contained eight items. The internal consistency for the entire sample on this factor was high (Cronbach's  $\alpha = .87$ ). The internal consistency for individual countries was good ( $\alpha = .90$  for New Zealand,  $.78$  for China,  $.89$  for Japan, and  $.92$  for the United States) as well as for the Asian and Western cultures broadly ( $\alpha = .81$  and  $.91$ , respectively).

The second factor contained within this questionnaire measured parental support of beliefs underlying the incremental theory of intelligence. This factor contained 11 items that yielded an internal consistency (Cronbach's  $\alpha = .68$ ) that can be termed nearly acceptable. The internal consistencies for individual countries varied ( $\alpha = .65$  for New Zealand,  $.62$  for China,  $.67$  for Japan, and  $.75$  for the United States), and it was deemed to be low for the broad Asian culture ( $\alpha = .67$  for the Asian culture and  $.70$  for the Western culture). Despite the fact that some countries yielded sub-.70 reliabilities, this construct was retained in the current study because of its theoretical importance.

*Child persistence/learned helplessness.* The child persistence/learned helplessness variable was developed using self-reported choices and affective reports from the learned helplessness protocol. This variable assesses child persistence/learned helplessness on a bipolar scale, with high scores indicating persistence and low scores being indicative of learned helplessness, and it was modeled on procedures used in Cain and Dweck (1995) and Smiley and Dweck (1994). The variable was created by averaging child responses from nine questions. Following each task, children were asked to report how they felt about their performance using a 3-point scale: 1 = *not good*, 2 = *Ok*, and 3 = *very good*. Child-reported feelings for the medium and hard levels (because of the experience of failure) from each of the three tasks were included in this variable: Children who exemplify the mastery orientation are more likely to report positive affect in the face of failure (i.e., higher scores). In addition, once a child had attempted all three levels within a task, they were asked which level they would like to repeat if there was more time. Task levels were coded so that 1 indicated the easiest level (success), 2 the medium level (failure), and 3 the hardest level (failure). Cain and Dweck (1995) and other related studies by Dweck have coded choice of the successful easy level as "learned helpless" and choice of a failed task as "mastery," so in this case low numbers indicated learned helplessness and high numbers indicated persistence. This composite variable achieved high internal consistency (Cronbach's  $\alpha = .79$ ) for the entire sample. However, the internal consistency varied by country and culture levels ( $\alpha = .70$  for New Zealand,  $.71$  for China,  $.71$  for Japan, and  $.69$  for the United States; and  $.84$  for the Asian culture and  $.70$  for the Western culture). Although the internal consistency of this variable was found in one case to be slightly below the accepted cut-off for internal reliability, this variable was included in the present study because of its importance as an outcome variable. Scores from the level children chose to repeat (3 items) and child-reported feelings on the medium and hard levels of each task (6 items) were linearly combined to create the final variable.

## Procedure

Schools were recruited from Beijing (China), Matsuyama (Japan), Chicago (USA), and Wellington (New Zealand). All of the 7- and 8-year old children within schools who agreed to participate were provided with information packets to take home to their parents. Information packets included an information sheet, consent forms, and parent questionnaires. The children included in this research returned a signed consent form from their parents or caregivers and

signed an assent form prior to participation as well. Ethical approval was granted by a University Ethics Committee in New Zealand, and further approval was sought and obtained in each of the other three countries from school boards and principals.

Once a parent had returned the questionnaire and the parental consent form, child interviews were conducted. A research assistant native to the culture visited each school to interview children individually. Children were told that they would be asked to participate in three different games. Games were counterbalanced to control for order effects. Children were informed that the experimenter was interested in understanding how children learn and that they should try their best on each task.

After a child had attempted all three levels of a task, he or she was asked, "Which one do you think was the easiest?" and "Which one do you think was the hardest?" as a manipulation check. They were also asked to decide which of the levels they would like to try again if there was to be extra time available at the end of the session. Following the child's response to this question, they were asked about why they had chosen to repeat that level rather than one of the other two. These questions were designed to assess child persistence following frustration and failure. Once each child had completed all three games, which took about 45 to 50 minutes on average, he or she was provided with an oral debriefing and given a small school-related token of appreciation (i.e., a pen or eraser). Parents did not receive compensation for their time.

## Results

### *Group Differences in Parent Beliefs and Behavior: Hypothesis 1*

Group differences in parent variables were examined by child age, child gender, and country. Hypothesis 1 stated that Asian parents would report more support of the incremental theory of intelligence, higher child encouragement, and more persistence. In contrast, Western parents were expected to report more support to the entity theory, less child encouragement, and more frustration than Asian parents.

A MANOVA was conducted, and the first notable result was a nonsignificant country main effect for entity beliefs. On the other hand, a significant main effect for country was found for endorsement of incremental beliefs,  $F(3, 160) = 14.15, p < .001$ . Contrary to predictions, a Student-Newman-Keuls test revealed that American parents ( $M = 1.02, SD = .64$ ) endorsed the incremental theory of intelligence most strongly, followed by the other three groups: New Zealand ( $M = .79, SD = .50$ ), Chinese ( $M = .72, SD = .56$ ), and Japanese ( $M = .63, SD = .46$ ). No significant differences were found between the last three groups. These findings are incongruent with expectations, with the American culture reporting the highest support.

A significant main effect for country was found for parent encouragement of children,  $F(3, 160) = 26.21, p > .001$ . A Student-Newman-Keuls test revealed that Chinese parents ( $M = 4.41, SD = .46$ ) reported encouraging their children significantly more than did parents from New Zealand ( $M = 3.64, SD = .52$ ), America ( $M = 3.74, SD = .52$ ), or Japan ( $M = 3.54, SD = .48$ ). No significant differences were found among the remaining three countries. These results provide partial support for the second hypothesis in that Chinese parents reported the highest level of encouragement; however, the prediction that Japanese parents would also show high levels of child encouragement was not supported.

A significant main effect for country was also found for parent frustration,  $F(3, 160) = 7.12, p < .001$ . A Student-Newman-Keuls test revealed that New Zealand parents ( $M = 1.28, SD = .81$ ) reported significantly higher levels of expressed frustration than parents from any of the other three countries. American parents ( $M = 1.00, SD = .60$ ) showed the second highest level of

expressed frustration, but this was not significantly higher than the frustration expressed by Japanese parents ( $M = .84$ ,  $SD = .84$ ). Chinese parents ( $M = .63$ ,  $SD = .62$ ) reported the lowest level of expressed frustration, but this was not significantly different from that reported by Japanese parents. These results provide partial support for the hypothesis that Western parents would report higher amounts of expressed frustration than Asian parents.

No significant main effects or interactions were found for child gender or age across all parent variables.

### *Group Differences in Child Manifestation of Persistence/Helpless Behavior: Hypothesis 2*

It was also hypothesized that the American and New Zealand children would display less persistence/more helpless behavior than Chinese and Japanese children. Age and gender were also included in this analysis; however, no significant differences were expected to be revealed for these two variables and none were.

A three-way ANOVA was conducted on the dependent variable of child persistence/learned helplessness (LH) where child age, child gender, and country were the three independent variables. A significant main effect was found for country,  $F(3, 165) = 39.93$ ,  $p < .001$ . A Student-Newman-Keuls test revealed a significant difference in persistent/LH behavior between China ( $M = 2.72$ ,  $SD = 0.32$ ) and the two Western cultures (New Zealand and America). Chinese children expressed significantly more persistent behavior than did New Zealand ( $M = 2.22$ ,  $SD = 0.30$ ) and American children ( $M = 2.17$ ,  $SD = 0.32$ ). Contrary to prediction, Japanese children ( $M = 2.25$ ,  $SD = 0.36$ ) were not found to show significantly more persistent behavior than Western children. This finding provides partial support for the hypothesis that Asian children would show more persistent behavior than Western children. The prediction was confirmed for Chinese children but not Japanese children.

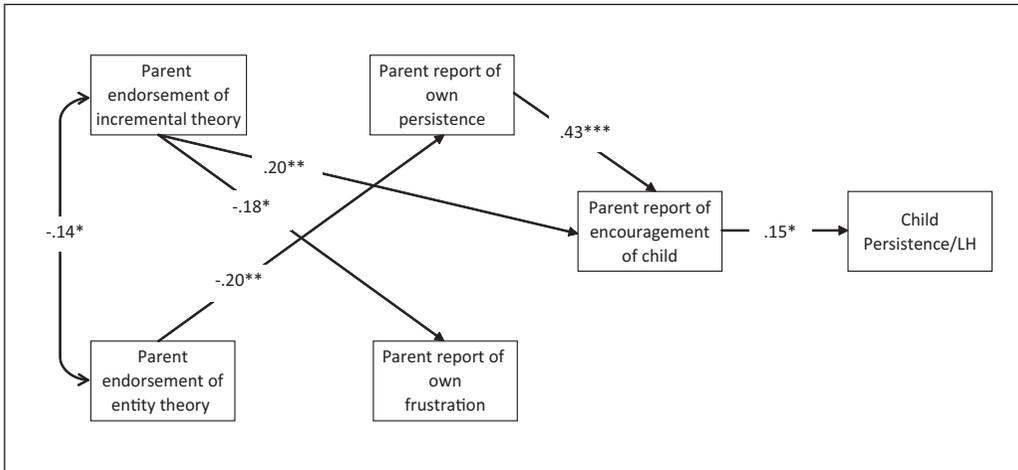
### *Association Between Parent Endorsement of Incremental and Entity Theories of Intelligence and Child Persistence/LH Behavior: Hypothesis 3*

We expected to find that parental incremental theory would be positively predictive of child persistence/LH behavior, and parental entity theory would be negatively predictive of child persistence/LH behavior. A linear regression analysis for the overall sample yielded a significant result for parental incremental theory ( $\beta = .21$ ,  $p < .05$ ), but parental entity theory did not predict the child outcome ( $\beta = .06$ ,  $p = .59$ ). This result is taken as partial support for this hypothesis because one of the two predictors was related to the outcome in the expected direction.

### *Mediation of the Relationships Between Parent Theories of Intelligence and Child Persistence/LH: Hypothesis 4*

We expected that parental incremental views would be positively predictive of parental persistence/LH and parental encouragement and negatively related to parental reports of frustration, and these in turn would predict children's persistence/LH. On the other side, parental endorsement of entity views were expected to be negatively predictive of parental reports of persistence and encouragement and positively related to parental reports of frustration, and these in turn were expected to predict children's persistence/LH.

To conduct path model analysis, the SEM program AMOS 18 (Arbuckle, 2009) was employed. The initial predicted model was constructed as described above, but it proved to be a poor fitting



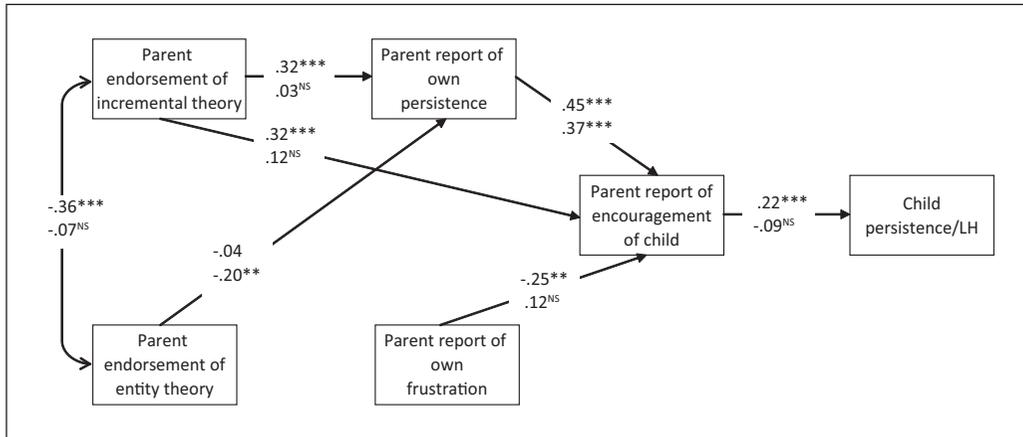
**Figure 1.** Mediation of the Relationship Between Parent Theories of Intelligence and Child Persistence by Parent-Reported Emotional Reaction Styles and Encouragement of Their Child for the Overall Sample Note.  $N = 197$ . Standardized regression coefficients (betas) are presented to indicate strength of relationships.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

model, so Hypothesis 4 in its most detailed and stringent sense was not supported. The next step was to use model pruning to obtain a data-based model (see Kline, 2005, for a description of this technique). A model obtained in this fashion is ad hoc and cannot be considered to be definitive in terms of testing theory, but it can be useful for suggesting future directions in research efforts. In this technique, nonsignificant paths were pruned from the model until all remaining paths proved to be statistically significant. In this way, a good fitting model was obtained,  $\chi^2(8) = 3.73$ ,  $p = .88$ ,  $\chi^2$  to  $df$  ratio = .47, NFI = .95, CFI = .99, RMSEA = .01, Critical  $N = 814$ . Standardized regression correlation coefficients are reported in Figure 1 to facilitate interpretation.

For the overall sample, parent persistence did not seem to mediate the relationship between parent incremental theory and child persistence/LH behavior (i.e., no link was found to exist between parent incremental theory and parent persistence), but parent encouragement of child did seem to function as a mediator between these two variables. Parent incremental theory predicted parent encouragement ( $\beta = .20$ ,  $p < .01$ ), and parent encouragement, in turn, predicted child persistence/LH behavior ( $\beta = .15$ ,  $p < .05$ ). A bootstrapped evaluation of the indirect effect was performed in AMOS, and although the size of the standardized indirect effect was not large (.03), it did yield a significant 95% bias-corrected confidence interval result (lower = .01 and upper = .06).

And although no significant base relationship was noted between parent entity theory and child persistence/LH behavior (see section above), it seems that parent entity theory might have exerted a weak influence on the outcome variable through reduced parent persistence and reduced parent encouragement. As before, a bootstrapped evaluation of the indirect effect was performed in AMOS, and although the size of the standardized indirect effect was smaller than in the previous analysis ( $-.01$ ), it did yield a significant 95% bias-corrected confidence interval result (lower =  $-.01$  and upper =  $-.03$ ). On balance, this resulting path model provides partial support for the predicted mediational roles of parent persistence and parent encouragement, but it must be admitted that the sizes of the indirect effects were small.



**Figure 2.** Significant Differences Between the Asian and Western Groups in the Relationships Between Parent Beliefs, Parent-Reported Behavior, and Encouragement of Child on Child Persistence/LH  
 Note. Asian cultural group:  $N = 103$ ; Western cultural group:  $N = 94$ . Standardized regression coefficients (betas) are presented to indicate strength of relationships. The beta on top signifies the estimated parameter for the Asian group and the beta on the bottom signifies the estimated parameter for the Western group.  
<sup>NS</sup> $p > .05$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

### Comparisons of the Relationships Between Parent Theories of Intelligence and Child Mastery Within the Asian and Western Cultures: Hypothesis 5

The overall dataset was disaggregated into two cultural groups: Asian (Japan and China) and Western (New Zealand and the United States). We began with the original predicted model and performed a two group run. The overall model fit was not adequate, so, in line with the method described above, we pruned parameters that were nonsignificant for both cultural groups until we obtained the resulting model,  $\chi^2(15) = 19.99, p = .17, \chi^2/df$  ratio = 1.33, IFI = .95, CFI = .94, RMSEA = .04, Critical  $N = 245$ . Follow-up equality contrasts between the two groups yielded 7 significant differences in the model (see Figure 2), all at  $p < .05$ . We predicted that incremental views would play a stronger role in Asian families than entity views, and the resulting path model supports this hypothesis. Incremental beliefs were found to have an indirect effect on child persistence/LH behavior through the mediators of mother persistence and mother encouragement. In notable contrast, only one of these four links (i.e., parent persistence to parent encouragement) for Western parents was statistically significant. In addition, we found that Asian parents' expression of frustration with difficult situations was significantly and negatively predictive of parent encouragement, which suggests that Asian parents encouraged their children more if they individually experienced frustration in these situations. And last, parent entity theory beliefs for Asian parents did not impart any significant impact on child persistence/LH behavior. In summary, the obtained model supports the view that incremental theory beliefs were more strongly associated with the child outcome for Asian compared to Western parents.

It was also predicted that Western parents would evidence a stronger web of relationships in the lower half of the model, but we obtained only scant evidence for this prediction. As predicted, entity views exerted an indirect effect on child persistence/LH through lessened parent persistence ( $\beta = -.20, p < .01$ ) and parent encouragement, but this effect was slight. The resulting model does not support the view that entity theory beliefs were more strongly associated with the child outcome for Western compared to Asian parents.

## Discussion

The current investigation was designed to assess cultural differences in the incidence and characteristics of persistence/learned helplessness in children and to evaluate whether cultural differences exist in a pathway of mediation between parent theories of intelligence and child persistence/LH. First, results showed that Chinese children, as expected, were more persistent in the learned helplessness paradigm than Western children, but Japanese children did not evidence the same elevated level of persistence. Second, support was obtained for the prediction that parents who endorsed higher levels of the incremental theory beliefs would have children who would be more persistent, but no (negative) relationship was obtained between parent entity theory beliefs and child persistence. Third, the predicted mediation pathway from parent theory beliefs to child persistence/LH through parent persistence and parent encouragement of child was partially supported: parent encouragement was seen to function as a mediator for the entire sample, but parent persistence did not. And fourth, examination of differences in the path model supported the prediction that parent incremental beliefs would play a stronger role in predicting child persistence/LH for Asian families than for Western families. Each of these findings will be discussed below.

In the present study, the Chinese children evidenced significantly higher levels of persistence than the American and New Zealand children. While higher persistence was also expected from the Japanese children, we did not find this result. Due to a cultural emphasis on hard work, academic success, and effort (Rao et al., 2000; Shimahara, 1986), it was predicted in the present study that children within both Asian cultures would be considerably more persistent than Western children. One reason for why the Japanese children more closely resembled the Western children than the Chinese children may be that Japan has been considerably more exposed to Western influences than has China. At the end of World War II, Japan was occupied by American troops and has since been heavily exposed to Western media and ideas (Morton & Olenik, 2004). This situation contrasts with that in China, which in the period between the Communist victory in 1949 and the economic liberalization of the last 20 years has been slow to embrace Western ideas, an avoidance which has only begun to lift in recent years (Wang, Hutters, & Karl, 2006). It is also possible that our Japanese sample was not typical of the Japanese population in that we may have inadvertently selected more Westernized families.

When considering the group differences in parent variables across countries, it was expected that Asian parents would report higher support of the incremental theory of intelligence and encouragement. In contrast, Western parents were expected to report higher rates of entity theory and expressed frustration. This hypothesis was expected because Asian parents have been seen to place more emphasis on effort and believe that with hard work all children can achieve academically (Hess et al., 1987; Rao et al., 2000; Shimahara, 1986). As predicted, it was parents from the two Western countries who reported the highest expression of frustration. However, it was only the Chinese parents who reported providing their children with more encouragement than New Zealand and American parents. Unexpectedly, Japanese parents reported levels similar to the Western participants. Furthermore, against expectations, it was parents from the two Western countries who reported the highest support for the incremental theory, and no country differences were noted for parental entity beliefs. It seems that the simple Asian-effort versus Western-ability prediction was not supported, and this result suggests that further theory and empirical study of cross-cultural differences and similarities of these two dimensions are warranted. Examination of the covariance relationships was expected to yield more interpretable results, and in fact the path models did yield more support for the predictions.

The third prediction was partially supported: As expected, parents who endorsed the incremental view had children who persisted more in the learned helplessness procedure. The main

objective in assessing both parent and child variables was to explore the idea that child persistent/LH behavior is linked to parent theories of intelligence and behavior. Helpless behavior seems to develop early, as it has been observed not only in primary school children but also preschool children (Cain & Dweck, 1995; Cole et al., 2006; Smiley & Dweck, 1994). Parental beliefs about intelligence, behavior, and academic goals have been shown to influence child grades and academic achievement (Elliot & Thrash, 2004; Gutman, 2006; Smiley & Lee, 2005). Socialization of children by parents may be responsible for this association.

On the other hand, parental endorsement of entity theory views was not predictive of persistent behavior/LH in children. In retrospect we would suggest that this non-relationship may be due to the nature of the outcome measure. The child persistence/LH measure was constituted of two components: self-reports of affect after failing a task and choice of difficulty level of an anticipated re-doing of the puzzle (following procedures used in Cain & Dweck, 1995; Smiley & Dweck, 1994). These two sources of data correlated with each other well—that is, a better Cronbach's alpha was obtained with all of these items rather than choice of difficulty level alone, but it may be that this composite variable represented the presence of persistence more than the lack of learned helplessness. Although persistence and helplessness are often construed as bipolar opposites, and we followed this view in the present article, it is possible that they are not. Future work would do well to determine whether persistence and helplessness are opposite ends of the same continuum because this has implications for studies such as the present one.

The fourth hypothesis sought to examine whether parental reports of reactions to difficult situations (i.e., persistence or frustration) and parental reports of encouragement of their children would mediate between endorsements of the two parent theories of intelligence and the child outcome. Research on this topic is scarce but Eccles et al. (1989, see p. 1054) have proposed a general model of parental influences on children's motivation and achievement that is very relevant here: Parental endorsement of theory beliefs would be located in their box entitled "parents' general beliefs and behavior," and parental reports of reactions to difficult situations and parental reports of encouragement would be located in their box entitled "parent-specific behavior." Research specifically focused on some of the measures taken here have been performed by Elliot and Thrash (2004) and Nolen-Hoeksema et al. (1995), and this work suggests that investigating the mechanisms by which parental beliefs affect child behavior would be fruitful. Of course, since we do not have longitudinal data in the present case, we cannot say that parental theory beliefs *caused* parents to behave in certain ways (with themselves or with their children), and these behaviors in turn *caused* children to behave in particular ways. However, the findings obtained in Figure 1 suggest, at the very least, that parental views are related to parental self-reports of behaviors, and these in turn are related to child behavior. We consider these findings to be an early step toward unpacking the "black box" of socialization—namely how parental views and behaviors concerning the acquisition of knowledge and skills lead to certain child outcomes in a school achievement-type situation—and it is heartening that two significant (albeit small) mediations were obtained in the predicted model.

And then finally, we predicted that the incremental theory of intelligence would be more important in explaining academic motivation for the Asian culture, and it was hypothesized that the entity theory would be more important for the Western culture. The path model results provided support for the first part of this hypothesis but not the second part. As predicted, the mediational pathways originating with incremental theory beliefs and passing through parent persistence and parent encouragement and ending with child persistence were all statistically significant for the Asian sample, but only one of these four links was significant for the Western sample. Asian cultures place a large amount of emphasis on the role of effort in academic success (Chen & Stevenson, 1995; Rao et al., 2000), and it is seen to be the job of the parent to instruct, model, and encourage persistent behavior in various settings, and particularly in the academic

domain. Hence, the finding that persistent behavior of Asian students is more effectively explained through parental support of the incremental theory than the entity theory is congruent with our prediction. This finding supports the argument made by Lay and Tsai (2005) that the achievement motivation of Asian students would be better explained through beliefs about effort rather than ability.

All of the relationships revealed within the Asian model were in the predicted direction. A body of research has established a positive connection between endorsement of the incremental theory of intelligence and persistent behavior among children (Diener & Dweck, 1980; Dweck & Leggett, 1988; Mueller & Dweck, 1998). Furthermore, support of the entity theory has consistently displayed negative consequences for motivation (Anderson & Jennings, 1980; Dweck & Leggett, 1988; Henderson & Dweck, 1990; Stipek & Gralinski, 1996). These findings have been found to be the case for child samples, and some research has supported these predictions for adults (Dweck, 1999). However, almost all of this research has been conducted with European American samples (e.g., Cain & Dweck, 1995; Nolen-Hoeksema et al., 1995; Smiley & Lee, 2005; Stipek & Gralinski, 1996). Nevertheless, the relationships displayed within the Asian path model indicate that the incremental theory of intelligence held by Asian parents is predictive of child mastery behavior, just as one would expect based on Western research. While incremental theory beliefs seem to be a significant predictive factor within the Asian culture, this does not appear to be the case for entity theory beliefs. Parent support of the entity theory for Asian parents was found to be irrelevant in predicting child behavior.

In contrast, little support was obtained for the proposed emphasis on parent entity beliefs by Western parents. We found that incremental and entity beliefs were more strongly negatively correlated for Asian parents ( $r = -.36, p < .001$ ) than for Western parents ( $r = -.07, ns$ ). It seems, then, that Asian parents think of incremental and entity views as more opposite than do Western parents, who apparently view them as more orthogonal. Many New Zealand and American parents reported high levels of both incremental and entity views, so they seemed to view them as not as incompatible as the Asian parents did.

In sum, the obtained findings suggest that a simple view that Asian parents and children endorse higher levels of incremental views of knowledge and skill acquisition whereas Western parents and children endorse higher levels of entity views does not seem to be supported. A large amount of theory and qualitative investigation would have one believe that Asian parents and children hold and implement incremental-type beliefs (e.g., effort and persistence) to a greater extent than Western parents and children, but little support was found for this view. The present results are important because it should serve to motivate researchers to try to empirically verify this long-accepted truism about Asian people.

The second important outcome of the present research is that significant and interpretable differences in the association between parental variables and child persistence/LH were found. The combined Japanese/Chinese sample evidenced a coherent trail of correlated variables beginning from parental endorsement of incremental views through parental reports of their own behavior to children's persistence/LH, and the Western sample did not. So although the mean group differences analyses did not verify that Asian parents endorsed incremental views to a greater extent than Western parents, the final path model persuasively argues that they evidence a more integrated and cohesive set of linkages between parental views and child behavior. These two sets of findings taken together suggest that incremental views of intelligence (and related parent-reported behaviors) seem to be more salient and coordinated for Asian cultures compared to Western cultures, reflecting important cultural values and beliefs in these cultures, but Asian parents and children do not necessarily endorse incremental views to a higher extent than Western parents and children on a fixed Likert-type scale. Further work will be necessary to tease apart this paradox.

### *Limitations of the Present Study*

It is recognized that the sample sizes used in the current investigation are small and the samples may not be entirely representative of the respective countries. Statistical analysis was limited due to the small samples gained from each culture and country, and power analyses indicated that only medium-sized effects would have been identified with country-level analyses. Larger samples would have strengthened the obtained results and would have made it possible to analyze the relationships between parent and child variables at the country level. Some of the variables, including the outcome variable of child persistence/LH, exhibited low internal reliability, so further development of self-report and behavioral measures would ensure more veridical measurement of the relevant constructs. Model testing using SEM failed to confirm the predicted models, so the data-based models described here should be seen as suggestive signposts for future work: Replication is needed to determine if these obtained relationships are replicable.

The current study only measured the beliefs and behaviors of one parent for each child. It would be of interest to explore the effects that both parents have on child theories of intelligence. Such research should consider whether dyads of parents are likely to hold similar beliefs about intelligence. Future work could also involve siblings and determine whether siblings support the same theory. If not, then the individual factors that protect children from or predispose them to developing helpless patterns of behavior could be explored. Consideration of teacher beliefs about intelligence may also be important in explaining the development of child theories of intelligence and motivation. Future work would benefit from assessing children's theories of intelligence to determine how parental variables impact on both these as well as persistent/LH behavior. Recent work by Dweck (2006) on "mindsets" provokes a need, as well, to examine how fixed and growth mindsets map onto learned helplessness and persistence not just for children but also for children in different cultures around the globe.

In the current investigation, data gained from the Chinese and Japanese cultures were combined to create a broader Asian sample. This was done because previous literature has indicated that these two cultures hold similar beliefs about academic achievement, effort, and intelligence (Chen & Stevenson, 1995; Holloway, 1988; Rao et al., 2000; Shimahara, 1986). Although little research has included New Zealand participants, it was assumed that the New Zealand and American cultures would also hold similar beliefs to each other about effort and intelligence. However, it is important to recognize that these are four separate and distinct cultures, and we obtained evidence here to suggest that the Chinese and Japanese samples were not similar in all regards. Furthermore, research involving greater numbers of Western and Asian countries would be useful to determine commonalities within and differences between these two broad groups.

The path models were conducted on concurrent data so the predictive flow of supposed causal patterns cannot be definitively supported or rejected. It may be the case, for example, that child behavior influences parental theories of intelligence instead of the direction postulated here. Longitudinal research is essential to clarify the direction of causal relations.

### **Conclusion**

A cross-cultural comparison of persistence/learned helplessness was conducted to explore differences and similarities in child behavior for the Asian and Western cultures. Although, as expected, Chinese children displayed higher levels of persistent behavior than New Zealand and American children, an unexpected finding was that the Japanese sample behaved similarly to the Western sample. This result may reflect a stronger presence of and openness to Western influences within Japan compared to China. The most striking result in this study was the obtained differences between the Western and Asian path models with regard to parent-reported incremental

theory beliefs and associated behaviors. As predicted, parent support of the incremental views led to greater child persistence (and lower LH) through the mediators of parent persistence and parent encouragement for Asian parents but not for Western parents. These results suggest that Asian parents believe in, model, and behave according to a different motivational schema than do Western parents.

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