

# The Relation of Emotion Knowledge to Coping in European American and Chinese Immigrant Children

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**Abstract** Emotion knowledge contributes to emotion regulation and coping among adults, but few studies have investigated its role in children's coping development, especially in a cross-cultural context. We examine relations between children's emotion knowledge and coping in European American and Chinese immigrant families. One hundred and three 7- to 10-year-old children and their mothers from European American and Chinese cultural background participated in this study. Children's emotion knowledge was assessed using emotion-situation knowledge production task. This task examines their understanding of situational antecedents of discrete emotions. Children's use of coping strategies was reported by mothers using the Children's Coping Strategies Checklist. Results showed that Chinese immigrant children had greater emotion knowledge of fear and pride but were reported using less variety of coping strategies than European American children. The relationship between children's knowledge of self-conscious emotions and their use of distraction coping strategies was moderated by culture, whereby knowledge of self-conscious emotions was negatively associated with the parent-reported distraction strategies only for European American children but not for Chinese immigrant children. The importance of culture in both theory and practice related to emotion knowledge and coping is discussed. Findings in this study suggest that family intervention and children's emotion training programs may need to consider children's cultural background.

**Keywords** Emotion knowledge · Coping · Culture · Self-conscious emotion · Middle childhood

## Introduction

Children may face many challenges growing up, from acute trauma (e.g., death of loved ones) to chronic stressors (e.g., poverty), and from social troubles (e.g., peer rejection) to personal difficulties (e.g., academic failure). A broad array of literature suggests that coping strategies are key to children's development of competence and well-being (Compas et al. 2001). In particular, adaptive coping under stressful events and circumstances can buffer the impact of childhood adversity, acting as a protective factor for physical and mental health (Skinner and Zimmer-Gembeck 2007). In contrast, maladaptive coping styles exacerbate the effect of stress on depressive symptoms, and contribute to internalizing and externalizing problems (Carpenter et al. 2012; Compas et al. 2001). Given that coping is essential for children's positive development, it is critical to understand the development of coping strategies adaptive to particular contexts and to identify contributors to coping.

Individuals utilize a variety of coping strategies, among which the most prevalent ones include support-seeking, avoidance, distraction, and problem solving (Skinner et al. 2003). In some previous research, problem solving and support-seeking have been referred to as active coping; whereas distraction strategies have been referred to as avoidance coping (Ayers et al. 1996). While preschoolers do not select coping strategies with regard to different situations, once children start school, they are increasingly capable of differentiating situations that are appropriate for seeking adults' support from those that are not, and they

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are more selective about sources of support within different contexts (Skinner and Zimmer-Gembeck 2007). Children also start to use cognitive problem-solving strategies such as working out other ways to deal with a problem. Furthermore, school-aged children show an increase in use of cognitive distraction (e.g., thinking about other things) in addition to behavioral distraction (e.g., playing games). Thus, middle childhood is a critical transitional period when coping strategies develop and differentiate rapidly (Skinner and Zimmer-Gembeck 2007).

This development of coping strategies has been found to be related to children's changes in physiology, perception, memory, cognition, language, emotion, and self-perceptions (Derryberry et al. 2003; Eisenberg et al. 1997; Fields and Prinz 1997). For example, cognitive development facilitates children's problem solving, internalizing behavioral standards, and perspective taking, which in turn contribute to more effective coping (Skinner and Zimmer-Gembeck 2007). Early socialization also plays an important role in the development of coping. Parents influence not only how children respond to stressors but also whether they determine an event as stressful (Gunnar et al. 1996; Power 2004). Through explicit processes such as coaching, modeling, and teaching, and implicit processes such as soothing, helping, and comforting, parents help children learn from bad experiences and plan appropriate coping to avoid their reoccurrence (Kliewer et al. 1994; Power 2004). Coping is therefore associated with a variety of individual and social factors.

One possible and yet uncharted contributor to coping is emotion knowledge, namely, the understanding of what situations are likely to elicit what emotions (Denham 1986; Denham et al. 1990; Wang 2001). During the preschool years, children become increasingly skilled at understanding the situational antecedents of emotional states and can identify emotions and the situations that provoke them (Harris et al. 1987). By the end of the preschool years, children are able to accurately identify situations that elicit basic emotions (e.g., happiness, anger, sadness, and fear). In middle childhood, their more advanced cognitive skills enable them to develop conceptual knowledge about complex self-conscious emotions, such as pride, guilt, and shame (Lagattuta and Thompson 2007; Thompson 1989). Thus, middle childhood is a significant time when emotion knowledge is broadened in scope (Saarni et al. 2006).

Emotion knowledge may contribute to effective coping by providing individuals with a wealth of information about the causes and consequences of specific situations and the corresponding behavioral repertoire for actions (Feldman Barrett et al. 2001; Schwarz and Clore 1983). Thus, individuals with greater emotion knowledge may be better at identifying strategies to enhance positive experiences and reduce stressors that provoke negative feelings.

There has been some evidence that emotion knowledge contributes to emotion regulation and coping in adults (Swinkels and Giuliano 1995). For instance, individuals who are better able to differentiate various negative emotions tend to regulate their negative emotions with a larger range of strategies (Feldman Barrett et al. 2001). Also, individuals with greater ability to differentiate positive emotions often take more preparatory steps before coping in order to act more effectively on the stress (Tugade et al. 2004). Although the relation of emotion knowledge to coping in school-aged children has yet to be examined, developmental literature has shown that preschoolers with greater emotion knowledge are better able to avoid inappropriate coping strategies and regulate themselves when upset. (Denham and Burton 2003; Eisenberg et al. 2005; Liew et al. 2004).

Early socialization is a critical process for children to learn about emotion knowledge and develop emotional regulatory behavior (Baker et al. 2011; Denham et al. 2007). In particular, by talking about emotionally laden past events with their children, and by explicitly discussing the causes and consequences of children's feeling states in the events, parents convey to children what are the appropriate emotional reactions within specific situations and further model to children how to express, cope, and control their feelings (Denham and Burton 2003; Eisenberg et al. 2005; Wang 2001; Wang and Fivush 2005). In addition, parents' own effective problem-solving responses to their children's negative emotions can facilitate children's understanding of the emotion-eliciting situations and, in turn, their use of effective coping strategies (Eisenberg and Fabes 1994; Eisenberg et al. 1996). The developmental link between emotion knowledge and coping is particularly interesting in a cultural context given that coping is shaped by culture.

The development of effective coping takes place in specific cultural contexts. Research suggests that in many Asian cultures, people value accepting fate and submitting to authority (Weisz et al. 1984). As a result, they may readily appraise negative events as uncontrollable losses that must be accepted or, if possible, escaped or avoided. In contrast, American cultures put an emphasis on individuality and self-assertion. Individuals in these cultures are motivated to change a situation by actively approaching and solving problems (Weisz et al. 1984). In a study that examined appraisal and coping among Korean Americans, Filipino Americans, and European Americans, Bjorck et al. (2001) found that the two Asian American groups considered stressors as more challenging and reported using more strategies of religious coping, distancing, and escape-avoidance, when compared with European Americans. Similarly, Chang (1996) found that Asian Americans reported higher levels of pessimism and more avoidance

and social withdrawal coping behaviors in response to a recent stress than did their European American counterparts. Matsumoto (2006) utilized the Emotion Regulation Questionnaire with Americans and Japanese and found that Americans reported a higher level of reappraisal strategy and a lower level of emotion suppression than Japanese. In addition, Chataway and Berry (1989) found that Chinese Canadian students coped with acculturative stress using less positive thinking or tension reduction than did French and English Canadian students. Taken together, the existing cross-cultural findings suggest that Asians and Asian Americans utilize more avoidance and withdrawal strategies to cope with stress than do European Americans, who more often use positive thinking and reappraisal coping strategies.

Apart from cultural differences in the use of active versus passive coping, Asians or Asian Americans and European Americans also show varied preferences in support-seeking strategies. Given their emphasis on social harmony and family relations, Asian individuals tend to hold strong extended family ties within a system of mutual obligation (Markus and Kitayama 1991; Wong and Wong 2006). Counter-intuitively, this precludes Asians from seeking stress-buffering social support from family and friends, due to concerns such as burdening others or losing face (Kim et al. 2008). Research has shown that compared with European Americans, Asians and Asian Americans perceive their families and friends as less supportive and are less likely to utilize social support. They are also more reluctant to disclose their personal problems to close others in times of stress (Aldwin and Greenberger 1987; Kim et al. 2008; Liang and Bogat 1994; Taylor et al. 2004). On the other hand, Asians and Asian Americans seem to prefer and benefit from forms of support that do not require explicit disclosure of feelings of distress (Kim et al. 2008). In sum, Asians and Asian Americans are less likely than European Americans to seek support from others, especially when they have to explicitly disclose their personal stress and feelings.

Moreover, some coping strategies may be more effective in one cultural context than another. For example, passive strategies, such as avoidance and distraction, may be more appropriate in East Asia where the norm is to “fit in” than American cultures. Studies have shown that although the use of avoidance is associated with less life satisfaction and more depression in European Americans, it has little effect on well-being in Asian Americans (Chang 2001). Similarly, for first-generation Japanese Americans, psychological distress is negatively associated with preference for passive coping strategies but positively associated with active strategies. By contrast, for more Westernized Japanese Americans, the distress is negatively associated with active coping strategies (Yoshihama 2002). Thus, although passive strategies such as avoidance and

distraction often seem maladaptive in the mainstream American culture, they can be beneficial for Asians and first-generation Asian Americans.

Little is known about children’s development of coping strategies appropriate to their cultural contexts. Existing cross-cultural studies have focused on children’s coping styles and coping goals (Cole et al. 2002; McCarty et al. 1999). For example, Thai and Nepali children reported more covert coping (e.g., “I tried to remember my favorite things”) and secondary control (i.e., adjusting oneself to fit objective conditions) than American children who more often used strategies that reflected primary control (i.e., modifying objective conditions to fit one’s wishes) (McCarty et al. 1999). These differences may originate from early socialization (Friedlmeier et al. 2011). Consistent with their cultural views of emotion as potentially disruptive to social harmony, Asian parents make fewer references to emotions when discussing emotional events with their children (Doan and Wang 2010; Wang 2001) and more often dismiss their children’s negative feelings than do European American parents (Cole et al. 2002). Consequently, children from different cultures may develop different coping strategies in line with their cultural expectations.

In this study, we investigated emotion knowledge and coping strategies in European American and Chinese immigrant school-aged children and the relation of emotion knowledge to their coping. *First*, we examined children’s emotion knowledge including knowledge of basic emotions (happiness, sadness, anger, and fear) and self-conscious emotions (pride, shame, and guilt). Given that children have mastered knowledge of basic emotions by the end of the preschool years and that they just start to understand situations eliciting self-conscious emotions in middle childhood (Lagattuta and Thompson 2007; Thompson 1989), we expected that children would score higher on knowledge of basic emotions than self-conscious emotions across cultural groups, and that Chinese immigrant children would perform similarly on the emotion knowledge task for basic emotions as European American children. For knowledge of self-conscious emotions, we had no a priori predictions about cultural differences given little existing research. On the other hand, our fine-grained coding might allow us to identify differences in the understanding of specific emotional situations between the two cultural groups. For instance, in line with the emphasis on relatedness in Chinese culture and the value on autonomy in American culture, Chinese immigrant children might nominate more emotional situations regarding relationship and group harmony, whereas European American children might nominate more situations about autonomy and individuality. Additionally, gender may affect emotion knowledge. Girls talk more about feelings than boys (Fivush et al. 2000) and parents discuss emotional states more frequently with girls than with

boys (Fivush 1998; Wang 2001). Girls' greater participation in emotional conversations may help them understand emotions better than boys. However, empirical research showed mixed results. Some research revealed no gender differences in emotion knowledge (Doan and Wang 2010; Wang 2003), while others showed that Chinese but not American girls had greater emotion knowledge than did boys (Wang et al. 2006). We further investigated gender effects in the present study and hypothesized that girls had greater emotion knowledge than boys. *Second*, we examined children's coping strategies in the two cultural groups. In line with findings among adults (Bjorck et al. 2001; Chang 1996; Kim et al. 2008), we expected Chinese immigrant and European American children to favor different strategies when coping with stress. Specifically, Chinese immigrant children would use more passive coping strategies, such as distraction and avoidance, than European American children, who would use more active problem-solving and support-seeking strategies. *Finally*, we examined the relation between emotion knowledge and coping. We expected emotion knowledge to have differential relations with coping in the two cultural groups, given the different cultural views about emotion, emotion understanding, and coping (Chang 2001; Doan and Wang 2010; Wang 2001, 2003). We expected that emotion knowledge would be positively related to distraction and avoidance strategies among Chinese immigrant children, but negatively among European American children. In particular, self-conscious emotions, including guilt, pride, and shame, are provoked by self-reflection and self-evaluation and involve people's comparison of their own attributes and behaviors *vis-à-vis* some standard, rule, or goal (Lewis 2008; Tangney and Tracy 2012). After children enter elementary school, they interact with peers in more competitive social, academic, and athletic activities. They appreciate increasingly being valued by others outside of the family, and frequently compare themselves with their peers in skills, attributes, and characteristics (Higgins 1991; Ruble and Frey 1991). Situations that threaten their self-evaluation may become the major stressors. Knowledge of self-conscious emotions should be more helpful for children to deal with these stressors than basic emotions. We thus expected that children's knowledge of self-conscious emotions would be more predictive of their coping strategies than their knowledge of basic emotions.

## Method

### Participants

Fifty-four European American mothers and their children (abbreviated "EA"; 19 boys, 35 girls; *age range* = 7.03–9.33 years,  $M = 8.23$ ) and 49 first-generation Chinese

immigrant mothers and their children (abbreviated "CI"; 26 boys, 23 girls; *age range* = 7.11–9.23 years,  $M = 8.11$ ) were recruited through local schools and by word-of-mouth in upstate New York. To be included in the study, both parents needed to be European Americans or first-generation Chinese immigrants. CI mothers' length of stay in the United States ranged from 2.5 to 25 years ( $M = 12$  years,  $SD = 4.50$ ). Children and their mothers were taking part in a larger longitudinal study of socio-cognitive development across middle childhood. All children were from middle-class backgrounds. Mothers provided consent for their children to participate in this study, and children provided assent.

### Procedure

Two trained female research assistants visited children at their home. One primary researcher interviewed children and the other researcher videotaped the whole procedure. Chinese immigrant children were visited by English–Chinese bilingual researchers and interviewed in the language of the children's choice. All except one CI child chose to speak English. All materials were written in both Chinese and English, and a translation and back-translation procedure was applied to ensure a balanced equality of both literal and sense meaning. The entire home visit took approximately 2 h. Only the tasks relevant to the current study are described here.

### Measures

#### *Emotion Knowledge Task (The Sticker Game)*

Children's emotion knowledge was assessed with an emotion-situation knowledge (EK) production task (Doan and Wang 2010; Harris et al. 1987; Wang et al. 2006). To keep the children interested throughout the task, the interviewer told them that this was a "Sticker Game" and that they would receive a sticker for giving responses to each set of questions. Children were asked to describe situations that would provoke a particular emotion in people (e.g., "What makes people feel happy?"). The interviewer prompted children to respond with as many situations as possible by asking "What else makes people feel happy?" until children indicated by speech or gesture that their responses were finished. Seven emotions were asked, including happiness, sadness, fear, anger, guilt, pride, and shame. The order of emotions was randomized for each child.

Children's responses in the EK task were transcribed and coded in the original language, Mandarin or English. For each emotion, children's responses were coded into categories that address conceptually distinct types of

situations. The number of unique categories for each emotion was then counted, yielding 7 scores to index the children's EK of the 7 emotions, respectively. For example, a child provided 4 responses to the question of "What makes people feel happy?": (1) getting a toy car, (2) getting a box of candies, (3) watching TV, (4) being praised by a teacher. The first two responses would be coded into the same category, "receiving desirable objects." The third response would be coded into the category, "engaging in desirable activities," and the fourth response would be coded into the category, "being praised." The child thus referred to 3 distinct categories for happiness and would receive a score of 3 for EK of happiness.

In addition, we created a composite score for EK of basic emotions (EK\_basic) by averaging children's EK scores of happiness, sadness, fear, and anger, and a composite score for EK of self-conscious emotions (EK\_SC) by averaging children's EK scores of pride, shame, and guilt. Each child received two EK composite scores, one for basic emotions and one for self-conscious emotions.

Based on children's responses, different sorting categories were developed for different emotions. Table 1 lists example categories for each emotion and also example responses for each category. Two trained research assistants coded the responses into categories based on the content of each response and the context in which the response was given. Whenever there was ambiguity, the coders watched the videotaped interviews for additional contextual information, such as the children's vocal tones and facial expressions. For each cultural group, one research assistant coded the data, and a second assistant coded 20 % of the data independently for reliability check. Both coders were blind to the study hypotheses. The intercoder reliability  $r$ 's for the seven emotions ranged from .80 to .95 for CI children and .83 to .94 for EA children. Disagreements were discussed and resolved among the coders.

#### *Children's Coping Strategies Checklist*

During the visit, mothers were asked to fill out a modified version of Children's Coping Strategies Checklist (CCSC) (Ayers et al. 1996; Ayers and Sandler 1999). In this checklist, mothers were asked to mark an X next to each statement (e.g., "My child listened to music") that was true for their children's behavior over the last month when they faced a stressful situation. CCSC includes four major dimensions: active coping strategies (i.e., problem-focused coping including cognitive decision making, direct problem solving, and seeking understanding, and positive cognitive restructuring including positivity, control, and optimism), distraction strategies (i.e., distracting actions and physical release of emotions), avoidance strategies

(i.e., avoidant actions, repression, and wishful thinking), and support-seeking strategies (i.e., seeking support for actions and feeling). We scored 1 for each checked item and 0 for each unchecked item, and then averaged scores of the items under each major coping dimension to index children's coping. Cronbach's alphas in the current sample were .87, .80, .64, and .84 for active coping, distraction, avoidance, and support-seeking strategies, respectively, consistent with the psychometric measures of this scale (Ayers et al. 1996).

We modified CCSC as a parent-report measure for various reasons. CCSC is designed as a self-report measure of coping for children of ages 9–13 years (Ayers and Sandler 1999). Although self-report coping measure has been successfully used with this age group up to adolescents (Causey and Dubow 1992; Glyshaw et al. 1989), there has been concerns with its use with younger children who may not have sufficient ability to provide reliable self-reports about coping strategies (Thomsen et al. 2002). Self-report measures of coping are generally unavailable for children younger than 8 years (Snoeren et al. 2013). In addition, studies have shown moderate to strong positive correlations between parent-reports and child-reports of coping (Connor-Smith et al. 2000). Given that many children in our sample were younger than 8, parent-reports seemed to be preferable.

#### *Verbal Skills*

Mothers filled out a Child Communication Survey (Feagans and Farrans 1997) that assessed children's discourse and narrative abilities, including listening, spontaneity, comprehension, production, rephrase, and fluency. Children's abilities were rated on a 5-point scale from 1 (well below average) to 5 (well above average). The ratings were aggregated to index the children's verbal skills. CI mothers rated on their children's communication skills in English and Chinese, respectively. The scores for the language that children used in the interview were used in analyses.

#### **Data Analyses**

To examine the cultural and gender differences in children's EK and parent-reported coping, we conducted multivariate analyses of covariance (MANCOVA) on EK and coping with child age and verbal skills as covariates. We further investigated the relation of children's EK to parent-reported coping with hierarchical linear regressions. One CI mother did not finish the coping checklist and another CI mother filled it out incorrectly. Two EA and two CI children's EK data were not complete due to technical problems. These children were excluded in relevant analyses. In all analyses, we used dummy codes for gender and culture (male and EA were coded as 0, and female and CI were coded as 1).

**Table 1** Example categories and responses in the EK coding scheme

	Example categories	Example responses for each category
<i>Basic emotions</i>		
EK_happiness	Engaging in desirable activities	“Watching TV”; “Playing soccer”
	Showing efficacy and mastery	“Getting an A on a math test”
	Showing social success	“Being popular in school”
	Being praised	“Being praised by mom”
	Descriptive (synonyms of the emotion word)	“They are happy when they have fun”
	Behavioral manifestation (facial or behavioral expressions)	“They are happy when they are laughing”
	Empathy (shared feelings of others)	“I’m happy when daddy is happy”
	Uncodable (responses were hard to understand)	Inaudible utterance
EK_sadness	Incorrect	“When their loved ones died, they were happy”
	Unable to engage in desirable activities	“Couldn’t watch TV”
	Demonstrating inefficacy	“Failing a test”
	Getting hurt physically	“Being hit by someone”
	Social rejection	“When a friend said ‘you are not my friend anymore’”
EK_anger	Descriptive; behavioral manifestation; empathy; uncodable; incorrect	
	Social conflict	“Fighting with my little brother”
	Being punished	“During ‘time out’”
	Unable to engage in desirable activities	“Couldn’t play soccer because of the rain”
EK_fear	Descriptive; behavioral manifestation; empathy; uncodable; incorrect	
	Perceiving a physical threat to self	“Being in a car accident”
	Encountering animate being	“Seeing a tiger”
	Fear of punishment	“I broke a vase and I was afraid my mom would yell at me”
	Descriptive; behavioral manifestation; empathy; uncodable; incorrect	One example for descriptive: “spooky stuff”
<i>Self-conscious emotions</i>		
EK_pride	Showing efficacy and mastery	“Won the champion in a race”
	Being able to do something	“When I rode a bike the first time”
	Favorable downward social comparisons	“I solved all problems, and no one else could do that”
	Doing good deeds	“I’m proud when I help my little sister get dressed”
	Descriptive; behavioral manifestation; empathy; uncodable; incorrect	
EK_guilt	Conducting wrong deeds	“Stealing something”
	Resisting authority	“Didn’t listen to mom”
	Taking away or destroying someone’s object	“Grabbing toys from my brother”
	Descriptive; behavioral manifestation; empathy; uncodable; incorrect	
EK_shame	Public humiliation	“Falling on the stage”
	Social rejection	“In a game, no one picked me to their team”
	Public incompetence	“Couldn’t answer a question in front of the whole class”
	Descriptive; behavioral manifestation; empathy; uncodable; incorrect	

**Results**

Before examining our research questions, we tested the covariate variables. A 2 (culture) × 2 (gender) analysis of variance (ANOVA) showed that EA children scored higher

on verbal skills than their CI peers (EA:  $M = 68.78$ ,  $SD = 11.14$ ; CI:  $M = 62.64$ ,  $SD = 14.02$ ),  $F(1, 99) = 5.26$ ,  $p = .02$ ,  $\eta_p^2 = .05$ . There was no gender difference in verbal skills (girls:  $M = 67.25$ ,  $SD = 11.38$ ; boys:  $M = 64.07$ ,  $SD = 14.57$ ). Interactions were not significant

unless otherwise stated. Age was correlated with verbal skills,  $r = .23$ ,  $p = .02$ . Analyses with and without the CI child who was interviewed in Chinese revealed the same pattern of results. Therefore, we reported results based on data of all children. In the following sections, we first examined group (culture and gender) differences in children's EK and coping strategies. We then looked into the relation between EK and coping in the two cultural groups.

Table 2 lists the means and standard deviations of children's emotion knowledge, indexed by the numbers of unique categories children responded for each emotion, as well as the composite scores for basic and self-conscious emotions. First we examined the effects of culture and gender on EK scores across the 7 emotions in a 2 (culture)  $\times$  2 (gender) multivariate analysis of covariance (MANCOVA), with child age and verbal skills as covariates. Results showed that the main effect of culture was marginally significant,  $F(7, 87) = 2.06$ ,  $p = .056$ ,  $\eta_p^2 = .14$ , whereby CI children had slightly greater EK than did EA children. There was also a gender effect,  $F(7, 87) = 2.62$ ,  $p = .02$ ,  $\eta_p^2 = .17$ , whereby girls scored higher in the EK task than boys.

We then conducted separate 2 (culture)  $\times$  2 (gender) ANCOVAs to determine the effects of culture and gender on knowledge of each emotion, with child age and verbal skills as covariates. There were no cultural differences in children's knowledge of happiness, sadness, anger, guilt, or shame. CI children scored higher on EK of fear,  $F(1, 93) = 8.86$ ,  $p = .004$ ,  $\eta_p^2 = .09$ ; and pride,  $F(1, 93) = 4.52$ ,  $p = .04$ ,  $\eta_p^2 = .05$ , than did EA children. Further analyses showed that CI children were more likely than EA children to refer to "being removed from familiar surroundings or persons" for fear, and the difference was marginally significant, Fischer's exact  $p = .06$ . For pride, CI children were more likely to mention "showing social

success" and "being able to do something" than EA children, Fischer's exact  $p = .04$  and  $.03$ , respectively.

Regarding gender effects, girls scored higher on EK for happiness, fear, and pride than boys,  $F_s > 4.35$ ,  $p_s < .04$ ,  $\eta_p^2_s > .05$ . Age was a significant covariate for anger, pride, and guilt,  $F_s > 4.51$ ,  $p_s < .04$ ,  $\eta_p^2_s > .05$ , whereby older children scored higher than younger children. There was no effect of verbal skills.

We then compared children's basic and self-conscious EK scores in a repeated-measures analysis of covariance (rANCOVA), with type of EK (i.e., EK\_basic and EK\_SC) as a within-subject factor, culture and gender as between-subject factors, and child age and verbal skills as covariates. For both cultural groups, children had greater knowledge of basic emotions than self-conscious emotions,  $F(1, 95) = 193.57$ ,  $p < .001$ ,  $\eta_p^2 = .67$ . No other effects neared significance.

Second, we examined parent-reported coping strategies. Means and standard deviations for each type of coping strategies were presented in Table 3. We first conducted a 2 (culture)  $\times$  2 (gender) MANCOVA on coping strategies, with age and verbal skills as covariates. A main effect of culture emerged,  $F(4, 92) = 15.02$ ,  $p < .001$ ,  $\eta_p^2 = .40$ , qualified by a Culture  $\times$  Gender interaction,  $F(4, 92) = 3.67$ ,  $p = .01$ ,  $\eta_p^2 = .14$ .

Further separate ANCOVAs on each type of copying showed that EA children's parent-reported coping were higher than CI children in all four types of coping strategies, namely, active coping,  $F(1, 95) = 19.36$ ,  $p < .001$ ,  $\eta_p^2 = .17$ ; distraction,  $F(1, 95) = 14.54$ ,  $p < .001$ ,  $\eta_p^2 = .13$ ; avoidance,  $F(1, 95) = 7.58$ ,  $p = .007$ ,  $\eta_p^2 = .07$ ; and support-seeking,  $F(1, 95) = 55.40$ ,  $p < .001$ ,  $\eta_p^2 = .37$ . The Culture  $\times$  Gender interaction was significant for support-seeking strategies,  $F(1, 95) = 7.92$ ,  $p = .006$ ,  $\eta_p^2 = .08$ , whereby cultural difference in support-seeking strategies was more pronounced for boys,  $F(1, 39) = 56.04$ ,  $p < .001$ ,  $\eta_p^2 = .59$ , than for girls,  $F(1, 54) = 10.83$ ,  $p = .002$ ,  $\eta_p^2 = .17$ .

In addition, there were cultural differences in the order of preferred coping strategies between the two cultural groups (see Table 3). EA mothers reported that EA children preferred support-seeking the most, followed by

**Table 2** Means and standard deviations for emotion knowledge (based on the number of categories children mentioned for each emotion)

Emotion	Emotion knowledge			
	CI		EA	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Basic emotions	4.19	1.34	3.93	1.56
Happiness	4.44	2.04	4.45	2.17
Sadness	4.24	1.63	3.85	2.12
Fear	4.10	1.51	3.49	1.60
Anger	3.94	1.89	3.94	2.26
Self-conscious emotions	2.22	1.05	2.27	.95
Pride	3.10	1.34	2.79	1.21
Guilt	1.73	1.75	2.11	1.59
Shame	1.83	1.58	1.91	1.39

**Table 3** Means and standard deviations for coping strategies

Coping strategies	CI ( $n = 47$ )		EA ( $n = 54$ )	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Active coping	.29	.16	.51	.24
Avoidance	.21	.15	.31	.21
Distraction	.38	.27	.62	.27
Support-seeking	.29	.23	.67	.29

distraction, although the two did not differ significantly and both were preferred more than active coping,  $t_s > 2.96$ ,  $p_s < .005$ , Cohen's  $d_s > .40$ . In contrast, CI mothers reported that CI children favored distraction the most, significantly more than support-seeking and active coping strategies,  $t_s > 2.74$ ,  $p_s < .009$ , Cohen's  $d_s > .40$ . Avoidance was the least favorable strategy in both cultural groups.

The third goal of the present study was to investigate the relation of children's emotion knowledge to their use of coping strategies, as well as the moderation effect of culture on the relation. We first examined how coping was affected by basic emotions and self-conscious emotions separately.

We conducted a series of hierarchical linear regressions to test the effect of EK on coping. Specifically, we examined EK\_basic and EK\_SC in relation to parent-reported use of active coping, distraction, support-seeking, and avoidance strategies, respectively, after controlling for culture, children's age, gender, and verbal skills. In each regression, we entered culture, age, gender, and verbal skills as predictors in a first step. Then in a second step we entered the EK\_basic and EK\_SC. Finally, in a third step we entered the interaction terms of culture  $\times$  EK\_basic and culture  $\times$  EK\_SC. All independent variables in the regressions were centered. We found a significant increase of  $R^2$  from step 2 to step 3 of the model predicting distraction strategies,  $\Delta R^2 = .076$ ,  $F(2, 90) = 4.67$ ,  $p = .01$ . In this model, parent-reported distraction strategies was significantly predicted by culture and culture  $\times$  EK\_SC. The summary of results from hierarchical regression analyses predicting distraction strategies was presented in Table 4. The main effect and interaction effect of EK\_basic were not significant, so they were dropped from further analyses. There was no significant increase of  $R^2$  on either step 2 or step 3 for active coping, support-seeking, or avoidance strategies.

In order to understand the interaction effect of culture  $\times$  EK\_SC on children's use of distraction strategies, we examined the effect of EK\_SC on distraction strategies for EA and CI children separately, controlling for gender, age, and verbal skills. Separate linear regression analyses for EA and CI children showed that EK\_SC negatively predicted the use of distraction only for EA,  $\beta = -.34$ ,  $t = -2.07$ ,  $p = .04$ . For CI, the relation between EK\_SC and distraction was not significant,  $\beta = .22$ ,  $t = 1.44$ ,  $p = .16$ . Finally, we explored which self-conscious emotion had an impact on EA and CI children's use of distraction. We examined the effect of pride, guilt, and shame on distraction controlling for age, gender, and verbal skills for EA and CI children, respectively. Results for EA children showed no single self-conscious emotion significantly predicted parent-reported distraction strategies. For

CI children, pride significantly predicted their parent-reported distraction strategies,  $\beta = .52$ ,  $t = 3.56$ ,  $p = .001$ .

In sum, for EA children, knowledge of self-conscious emotions negatively predicted their parent-reported distraction strategies. In contrast, knowledge of self-conscious emotions on average did not predict CI parent-reported distraction strategies. However, CI children's knowledge of pride was positively predictive of their parent-reported distraction strategies.

## Discussion

As expected, school-aged children developed a greater knowledge of basic emotions than self-conscious emotions, and girls had greater emotion knowledge than boys in both cultural groups. This is consistent with the findings that children understand basic emotions from preschool years but start to gain situational knowledge of self-conscious emotions around middle childhood (Lagattuta and Thompson 2007). Girls' higher level of emotion knowledge may be due to their greater involvement in emotional talk with their parents than boys (Fivush 1998).

Furthermore, the cultural difference in emotion knowledge task was not significant, although Chinese immigrant children referred to more categories of emotional situations for fear and pride than did European American children. In terms of coping, European American children were reported to use a greater variety of strategies than were Chinese immigrant children across all types of coping strategies. Furthermore, the understanding of self-conscious emotions, but not basic emotions, predicted children's parent-reported distraction strategies, and the relation varied in the two cultural groups. For Chinese immigrant children, greater emotion knowledge of pride positively predicted their parent-reported distraction strategies. European American children's knowledge of self-conscious emotions on average was negatively associated with their distraction strategies.

Our results regarding cultural difference in EK was different from previous studies among younger children, which showed that Chinese preschoolers generated fewer responses than did European American preschoolers (Doan and Wang 2010; Wang 2003). In our study, Chinese immigrant school-aged children did not underperform their European American peers in EK task; on the contrary, they had greater knowledge of fear and pride. In particular, compared to European American children, Chinese immigrant children were more likely to refer to "showing social success", such as being popular or being liked by friends; and to the category "being able to do something", such as being able to fix a chair. These cultural differences may stem from different cultural values as well. Chinese culture

**Table 4** Hierarchical regression analyses for variables predicting children's distraction strategies

Variables	Distraction strategies						$R^2$	$\Delta R^2$
	$\beta$	$B$	$SE (B)$	$t$	$p$			
<i>Step 1</i>							.193***	
Culture**	-.34	-.20	.06	-3.57	.001			
Gender	.03	.02	.06	.27	.79			
Age	.10	.06	.06	1.01	.32			
Verbal skills	.15	.004	.003	1.59	.12			
<i>Step 2</i>							.195**	.003
Culture**	-.35	-.21	.06	-3.56	.001			
Gender	.02	.01	.06	.09	.85			
Age	.10	.06	.06	.95	.35			
Verbal skills	.15	.004	.003	1.58	.12			
EK_basic	.06	.01	.02	.52	.60			
EK_SC	-.05	-.01	.03	-.40	.69			
<i>Step 3</i>							.271***	.076*
Culture***	-.35	-.21	.06	-3.64	<.001			
Gender	.01	.01	.06	.12	.91			
Age	.14	.09	.06	1.36	.18			
Verbal skills	.15	.004	.003	1.54	.13			
EK_basic	.06	.01	.02	.49	.63			
EK_SC	-.08	-.02	.03	-.68	.50			
Culture $\times$ EK_basic	-.15	-.06	.05	-1.27	.21			
Culture $\times$ EK_SC**	.33	.19	.06	3.04	.003			

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

holds an orientation towards relatedness and emphasizes group harmony (Markus and Kitayama 1991). Being fit and popular in a social group is encouraged in Chinese culture and may be valued as a significant situation to feel proud. Additionally, Chinese students have higher need for achievement than Western students (Salili 1996). Therefore, having the ability to do things is also one important reason for pride in Chinese culture. However, we did not find cultural differences in children's knowledge of other emotions. Previous studies have shown that Chinese parents often use social shaming to teach young children appropriate behaviors and correct their wrongdoings (Fung 1999). Consequently, Chinese children may understand shame better than European American children (Wang and Leichtman 2000). This cultural difference did not emerge in the current study perhaps due to the acculturation of our Chinese immigrant sample. These findings shed light on the cultural similarities and differences in children's emotion understanding in middle childhood. When children grow from preschool to middle childhood period, the cultural difference may be reflected in how they understand specific emotions and specific aspects of emotions.

In contrast to emotion knowledge, European American children were reported to adopt a greater variety of coping strategies than Chinese immigrant children for all four

major strategy types: Active coping, distraction, avoidance, and support-seeking strategies. It is possible that Chinese immigrant children are more reluctant to cope when facing stressors given that Asian culture believes in fate and Asians rely more on external locus of control (attribute events in life to luck, chance, fate, or powerful others) and are more likely to cope passively than Westerners (Bjork et al. 2001; Essau and Trommsdorff 1996; Paguio et al. 1987). Although some strategies, such as distraction and avoidance are considered more passive than active problem solving, they still require effortful actions or thoughts to deal with the stressors. Children with higher external locus of control may prefer to do nothing with stressful situations. On the other hand, Asian children often use more covert coping than European American children (McCarty et al. 1999). As a result, Chinese immigrant mothers might not recognize their children's strategies and did not report as many strategies as their children might have actually used. Additionally, our measure for coping aimed to test the variety rather than the frequency of children's coping strategies. As a result, the cultural difference in coping might be that Chinese immigrant children used a small number of strategies with high frequency, whereas European American children used a great variety of strategies with low

frequency. Further studies are needed to investigate this issue.

Consistent with our hypothesis, another important cultural difference emerged concerning the relation between children's emotion knowledge and their use of coping strategies. As we expected, knowledge of self-conscious emotions are more predictive of children's parent-reported coping than basic emotions. For Chinese immigrant children, knowledge of pride was positively associated with their parent-reported distraction strategies. In contrast, European American children's knowledge of self-conscious emotions on average was negatively associated with their parent-reported distraction strategies. Children who understand more types of situations eliciting self-conscious emotions may know more about strategies to deal with these situations, including which strategies are effective and which are not. Consequently, they may be more able to access appropriate coping strategies and at the same time inhibit inappropriate strategies. As discussed in the introduction, passive coping strategies, such as distraction, are discouraged in the mainstream American culture, which emphasizes autonomy and encourages individuals to actively confront stressors (Chun et al. 2006). As a result, European American children with greater knowledge of self-conscious emotions may avoid such culturally inappropriate strategies. In contrast, Chinese culture emphasizes accepting fate and external control. Distraction strategies are often encouraged in this cultural context. Accordingly, greater knowledge of self-conscious emotions do not inhibit Chinese immigrant children from the use of distraction strategies based on their mothers' report.

Notably, emotion knowledge did not predict other three types of parent-reported coping strategies, namely, active coping, support-seeking, and avoidance strategies. One possibility is that the EK task used in our study might not be sensitive enough to capture individual differences in emotion knowledge. Further studies with other measures of emotion knowledge are needed to examine the relation between emotion knowledge and coping. In addition, children's coping strategies were reported by mothers, which might be inaccurate because some internal process of coping, such as cognitive reappraisal, would be difficult to be perceived by others. There might also be cultural differences in parents' ability to identify children's coping strategies. For example, given that Chinese or Chinese immigrant parents utilize less explicit ways to teach their children about emotions, they may tend to be less specific in identifying their children's coping strategies than European American parents. To corroborate the current findings, future studies should develop age-appropriate measures of coping and use a combination of behavioral or observational measures and parent and child reports. In addition, the CCSC assessed children's general coping

styles without taking into account the nature of stressors. One future question is how children cope with stressful situations in which critical cultural values and beliefs are salient, and how children's emotion knowledge influences their coping when their most significant part of self-construal, such as independence or interdependence, is threatened. Finally, the effectiveness of particular coping strategies is different across cultural contexts. Given that Chinese immigrant children experience Chinese culture at home and mainstream American culture in school, it is important to examine whether some strategies, such as distraction, are adaptive for their well-being. Our next step is to examine how Chinese immigrant and European American children's emotion knowledge and coping strategies influence their socio-emotional wellbeing. These studies together may guide education and intervention practices related to children's emotion knowledge and coping strategies, which, in turn, can facilitate children's well-being, especially for immigrant and multicultural children.

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