

The Chinese Classroom Paradox: A Cross-Cultural Comparison of Teacher Controlling
Behaviors

Ning Zhou, Shui-fong Lam

The University of Hong Kong

Kam Chi Chan

Purdue University – North Central

Author Note

Ning Zhou, Department of Psychology, The University of Hong Kong

Shui-fong Lam, Department of Psychology, The University of Hong Kong

Kam Chi Chan, Education Department, Purdue University – North Central

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Correspondence concerning this article should be addressed to Shui-fong Lam, Department of Psychology, The University of Hong Kong, Pokfulam Road, Hong Kong, China. E-mail:

lamsf@hku.hk

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Abstract

Chinese classrooms present an intriguing paradox to the claim of self-determination theory that autonomy facilitates learning. Chinese teachers appear to be controlling but Chinese students do not have poor academic performance in international comparisons. The present study addressed this paradox by examining the cultural differences in students' interpretation of teacher controlling behaviors. Affective meanings of teacher controlling behaviors were solicited from 158 Chinese 5th graders and 115 American 5th graders. It was found that the same teacher controlling behaviors had different affective meanings for different cultural groups (Chinese vs. American) and groups with different levels of social-emotional relatedness with teachers (High vs. Low). Chinese children perceived the behaviors as less controlling than American children and in turn reported more motivated in their teachers' class than American children. Regardless of culture, children with high social-emotional relatedness with teachers perceived the behaviors as less controlling than children with low social-emotional relatedness with teachers. It was also found that internalization mediated the relation between social-emotional relatedness and children's learning motivation in both cultures. The findings revealed cultural differences as well as similarities in the psychological process of internalization.

Keywords: controlling behaviors, autonomy, teacher-student relationship, internalization, learning motivation

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In the last two decades many studies have shown that autonomy-supportive and controlling practices in classrooms have contrasting effects on motivational outcomes in Western culture (e.g., Benware & Deci, 1984; Black & Deci, 2000; Flink, Boggiano, Main, Barrett, & Katz, 1992; Roth, Assor, Kanat-Maymon, & Kaplan, 2007; Skinner & Belmont, 1993). Autonomy-supportive practices, such as providing choices, acknowledging what students want, and allowing time for students (Reeve & Jang, 2006), have been shown to be associated with autonomous motivation which in turn leads to desirable learning outcomes (e.g., school engagement, conceptual understanding, and academic success). Conversely, controlling practices, such as putting pressure on students (Deci & Ryan, 1987), having external evaluations (Reeve & Jang, 2006), and demanding conformity (Chirkov & Ryan, 2001), diminish motivation and lead to undesirable learning outcomes (e.g., dropping out, lack of motivation, and poor academic performance).

According to self-determination theory (SDT), autonomy is a universal need and its fulfillment facilitates learning (Ryan & Deci, 2000). However, some cross-cultural psychologists are skeptical about its universal importance (e.g., Iyengar & Lepper, 1999; Markus & Kitayama, 1991). A notable challenge comes from the paradox presented by the Chinese classrooms of Confucian Heritage Culture (Biggs, 1996; Watkins & Biggs, 2001). Chinese teachers have been described as controlling (Cheung & Lau, 1985; Ginsberg, 1992; Rao, 2006; Tobin, Wu, & Davidson, 1989); therefore, from the perspective of SDT, it would follow that their students should not have positive learning outcomes. Yet, results of a number

of international comparisons such as Trends in International Mathematics and Science Study (TIMSS) and the Program for International Student Assessment (PISA) suggest that Chinese students out-perform their Western counterparts in a number of academic subjects (Mullis, Martin, Gonzalez, & Chrostowski, 2004; Organization for Economic Cooperation and Development, 2007).

The purposes of the present study are twofold. First, it addresses the Chinese classroom paradox by examining the cultural differences in Western and Chinese students' interpretation of teacher controlling behaviors. Second, it investigates how social-emotional relatedness, an underlying factor that contributes to students' interpretation of teaching controlling behaviors, may function in student motivation in both Western and Chinese cultures.

The Chinese Classroom Paradox

The Chinese classroom paradox is derived from the following two premises: First, authoritarian and controlling teachers will hinder student motivation, which in turn will lead to poor learning outcomes, whereas autonomy-supportive teachers will promote student autonomous motivation, which in turn will lead to positive learning outcomes. Second, the literature claims that Chinese classrooms tend to have large classroom size and are highly authoritarian with directive teaching methods (Biggs, 1996). According to Ginsberg (1992), in China knowledge is not open to challenge and teachers decide what should be taught. Chinese teachers have strict control over their classes (Cheung & Lau, 1985) in terms of instructional strategies and classroom management. In a comparative study of preschool teachers, Tobin, Wu, and Davidson (1989) found that the pedagogy of Chinese preschool teachers, compared to those of their counterparts in Japan and the U.S., was more regimented.

Control and order seem to be an indispensable part of Chinese children's school life as presented in these studies.

According to the above premises, Chinese students should have low motivation and poor academic performance. However, international comparisons in science and mathematics (e.g., TIMSS, PISA) indicated that Chinese students outperform their American counterparts. In addition, Geary, Liu, and Bow-Thomas (1992) found that Chinese first graders demonstrated more sophisticated skills in mathematics and were comparable to American fifth graders. In contradiction to the claim of SDT, it appears that Chinese teachers help their students achieve positive learning outcomes with their controlling practices.

Two Solutions to the Paradox

To solve this paradox of the Chinese classroom, two approaches have been used. The first is to discredit the premise about the controlling behaviors of Chinese teachers, and the second is to deny the claim about the outstanding academic performance of Chinese students. In the first approach, O'Connor (1991) argued that Chinese teachers were actually constructivists who adopted student-centered approaches in teaching. This claim was supported by Stigler and Stevenson (1991) who reported that lessons in Chinese schools were presented in a thoughtful, relaxed, and nonauthoritarian manner. The authoritarian stereotype of Chinese teachers might be a result of misunderstanding by Westerners. Ho (2001) found that, compared to Australian teachers, Chinese teachers were more involved in the role of taking moral responsibility, nurturing their students and caring for them when using their authority. She pointed out that the controlling behaviors of Chinese teachers were embedded in a culture with a strong concern for love, care and nurture, and that they were not as controlling as

perceived by Westerners.

In the second approach to the paradox, researchers have argued that the performance of Chinese students might not be as good as it appeared to be. Cai (2000) found that although Chinese students outperformed American students in mathematics, their performances were only associated with specific types of tasks. Chinese students performed better than American students on process-constrained tasks, which could be solved using standard algorithms. However, American students performed better on process-open tasks for which there was no formal algorithm to follow. Cai's findings (2000) are in corroboration with those of the World Class Test in 2004. This international test revealed that Hong Kong primary school students had poor problem-solving skills although their mathematical operation skills were good ("International Test," 2004). The underperformance of problem-solving among Chinese students may result from rote learning and repetitive drilling in examinations. Drilling may help Chinese students excel in tests that assess computation but it does not help them excel in tests that assess conceptual understanding and openness in reasoning when there is no formal algorithm to follow.

The two approaches above have made reasonable attempts to solve the paradox. However, the evidence for both approaches is inconclusive. While there are studies (Cheung & Lau, 1985; Ginsberg 1992; Tobin et al., 1989) showing that Chinese teachers are controlling, there are also studies (Ho, 2001; O'Connor, 1991; Stigler & Stevenson, 1991) showing otherwise. Similarly, while there are studies (Geary, Liu, & Bow-Thomas, 1992; Mullis et al., 2004) showing that Chinese students excel in academic performance, there are also studies (Cai, 2000; Cai & Hwang, 2002) showing otherwise.

An Alternative Approach to the Paradox

Most of the studies reviewed above used third-party observations of classroom activities (e.g., Stigler & Stevenson, 1991) or interviews with teachers (e.g., Ho, 2001), while few considered students' perspectives. There may be differences among the students' perceptions of teacher behaviors, teachers' perceptions of their own behaviors, and researchers' observations. Whether a teacher's behaviors are controlling or autonomy-supportive should be judged by his or her students. A Chinese teacher's behaviors that are perceived to be controlling by a Western observer may not be perceived as such by his or her Chinese students. Students from different cultures may have different perceptions of the same behaviors of their teachers. The different meanings they assign to teacher behaviors may be a key to the Chinese Classroom Paradox. An alternative approach to this paradox is to consider the students' perspective.

In the literature of parenting, there is a similar paradox (Chao & Sue, 1996). Paradoxical consequences of parental control have been found in multicultural samples. For instance, when compared with Caucasian American students, Asian American high-school students reported that their parents were more authoritarian but they had higher levels of academic performance (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987). The findings of Mason, Walker-Barnes, Tu, Simons, and Martinez-Arre (2004) may provide a possible solution to this parenting paradox. Mason et al. (2004) found that the same behavior of parents was associated with different feelings by children of different ethnic backgrounds. In their study, they asked adolescents from three ethnic backgrounds (African American, Caucasian American, and Hispanic American) to report their feelings towards the same

specific controlling behavior of parents. The findings revealed that African American youth reported the highest feelings of being loved and cared for, whereas Caucasian students did not feel so. Similarly, Caucasian students reported relatively higher levels of being hurt and controlled whereas African American student did not feel so. The different emotional responses to the same parental behavior may provide the solution to the paradoxical phenomenon of parenting across different cultural or ethnic groups.

The solution to the Chinese Classroom Paradox may also lie in different emotional responses of Chinese and Western students to the same controlling behavior of their teachers. The different emotional responses may be attributed to the well-known East-West cultural differences. Western societies value independent self-construal, autonomy, and egalitarian relationships. In contrast, Eastern societies value interdependent self-construal, harmony, and hierarchical relationships (Bond & Smith, 1996; Markus & Kitayama, 1991; Schwartz, 1994; Singelis, Triandis, Bhawuk, & Gelfand, 1995). Filial piety (i.e. respect for the parents and ancestors) is considered the first virtue in Chinese culture. As a corollary, the support of autonomy, self-direction, and personal freedom appear to be a less common socialization practice in Chinese people (Chao & Tseng, 2002). Instead, high emphasis is placed on conformity and social harmony (Tseng, 2004). With an extensive review of historical and contemporary evidence, Chang and his colleagues (2011) suggested that compliance and conformity are adaptive strategies that facilitate social learning in Confucian societies whereas independence and autonomy are adaptive strategies that facilitate individual learning in Western societies. Given the greater emphasis on obedience and compliance in collectivistic culture (Ho, 1986), Chinese students may report feeling less controlled. In

contrast, Western students may have stronger feelings of being controlled because of the explicit advocacy for independence and autonomy in Western culture.

Although Mason et al. (2004) pointed out the importance of children's perceptions, they did not look into the underlying factors of these perceptions. Neither did they examine how the perceptions were related to positive developmental outcomes. In view of this lacuna, the present study did not only compare the emotional responses of Chinese and American students to teacher controlling behaviors but also investigated how these responses were related to student learning motivation and might be explained by social-emotional relatedness between teachers and students. Social-emotional relatedness can be an important underlying factor that determines how students perceive and feel about the controlling behaviors of their teachers. It can also be a catalyst for the internalization that accounts for positive developmental outcomes.

Social-emotional Relatedness

Social-emotional relatedness refers to the feeling of closeness or belongingness. It is the innate desire of an individual to attach and connect to specific social partners such as parents, teachers, peers, and spouses (Bowlby, 1973; Ryan & Deci, 2002). From the SDT perspective, social-emotional relatedness plays an important role in motivation. Many studies have found that social-emotional relatedness facilitated internalization and maintained motivation (e.g., Bao & Lam, 2008; Connell & Wellborn, 1991; Deci, La Guardia, Moller, Scheiner, & Ryan, 2006; Qin, Pomerantz, & Wang, 2009; Ryan & Patrick, 2001).

Social-emotional relatedness is intricately related to a sense of autonomy. As demonstrated by Iyengar and Lepper (1999), the deprivation of personal choice did not

diminish the motivation of Asian American children when their choices were made by in-group others such as mothers and classmates. Their motivation was even higher than that of those who had personal choice. It was possible that the children in the controlling condition of no personal choice might not perceive themselves as being controlled when they had a close relatedness with the in-group others who made the choice for them. The study by Bao and Lam (2008) provided direct support for this explanation. They found that when the relatedness between the choice maker and the children was high, personal choice did not make any difference to the children's motivation. In a similar vein, Qin, Pomerantz, and Wang's longitudinal study (2009) also indicated that the parent-child relationship moderated the role of decision-making autonomy in both the U.S. and China. Taken together, these findings provided support for the moderation effect of social-emotional relatedness on the relation between autonomy and motivation.

The teacher-student relationship has been found to have an impact on students' perceptions and interpretations of school work. For instance, Davis and Couch (2001) found that students who perceived their relationship with teachers as distant reported academic tasks as "coercive, repetitive, isolated, irrelevant." In contrast, students who perceived their relationship with teachers as close reported academic work as fun and meaningful. In view of the evidence that the perception of school work depended on the quality of the teacher-student relationship, it is reasonable to expect that social-emotional relatedness may influence how students perceive teacher controlling behaviors. Students with different levels of social-emotional relatedness with their teachers may perceive the same controlling behaviors differently. Specifically, students with high relatedness may tend to report more positive

feelings than those with low relatedness.

Internalization

In view of the effects of social-emotional relatedness on student motivation, it is important for researchers to find out through *what* psychological process it affects learning motivation. According to SDT, internalization is the pathway by which social-emotional relatedness contributes to motivation (Deci & Ryan, 2000; Ryan, Connell, & Deci, 1985). Internalization is a natural process of assimilation in which people actively integrate external regulation into self-regulation (Ryan & Deci, 2002). Although it is a natural tendency in human development, it does not happen in an automatic way, but is facilitated by the fulfillment of the need for social-emotional relatedness (Ryan & Deci, 2000). Children will internalize the values and behaviors of the socializing agents (e.g., teachers and parents) to whom they are socially and emotionally attached. When children internalize the demands of their teachers or parents, they are more likely to have strong motivation in learning because autonomy and internalization are two intertwined concepts (Deci & Ryan, 2000). Students will experience an internal locus of causality when there is internalization. (deCharms, 1968; Ryan & Connell, 1989). They may feel autonomous and motivated when the external behaviors of their teachers have been transformed and integrated into their volitional self-regulation.

Overview of the Study

The present study consists of two lines of investigation. First, to solve the Chinese Classroom Paradox, it investigated the cultural differences in student perceptions of teacher controlling behaviors in the U.S. and China. Second, it also investigated how universal the

roles of social-emotional relatedness and internalization might be in student motivation. The former investigation addressed the Chinese Classroom Paradox and focused on cultural differences. It examined how different cultures associate with different perceptions of teacher controlling behaviors and different levels of student motivation. The latter investigation focused on cultural similarities and aimed at revealing a universal mechanism that contributes to student motivation. It examined how socio-emotional relatedness between teacher and students is associated with internalization and student motivation. With reference to these two investigations, four hypotheses were formulated.

Hypothesis 1: Students from the U.S. and China report different affective meanings towards the same teacher controlling behaviors. Given the differential emphasis on autonomy in collectivistic and individualistic cultures, it is anticipated that Chinese students report less negative feelings to teacher controlling behaviors than American students.

Hypothesis 2: In line with SDT, disregarding culture, how students perceive teacher controlling behaviors depends on their social-emotional relatedness with their teachers. It is expected that the students who have high social-emotional relatedness with their teachers will have less negative feelings and more positive feelings to the controlling behaviors of their teachers than their counterparts who have low social-emotional relatedness with their teachers.

Hypothesis 3: How students feel about being controlled can explain the motivation differences between the two cultural groups. Students from the U.S. feel more controlled by their teachers, and in turn report less motivated in their teachers' class. In contrast, students

from China feel less controlled by their teachers, and in turn report more motivated in their teachers' class.

Hypothesis 4: In line with SDT, regardless of cultures, internalization mediates the association between teacher-student relatedness and student motivation. That is, internalization accounts for the effect of teacher-student relatedness on student motivation.

Hypotheses 1 and 3 pertain to cross-cultural differences and address the Chinese Classroom Paradox. Hypotheses 2 and 4 pertain to cross-cultural similarities and examine the universal roles of social-emotional relatedness and internalization in student motivation. Figure 1 presents the conceptual relations among the constructs in the present study and indicates the hypotheses about these constructs.

Method

Participants

Participants were 273 fifth graders, 158 Chinese from mainland China and 115 American from the U.S. To ensure the homogeneity within the two samples, participants who were not Chinese or Caucasian were excluded. American participants (57 boys and 58 girls) were recruited from six classes in two public schools in Porter County in Indiana where over 95% of the population were White (U.S. Census Bureau, 2007). Chinese participants (90 boys and 68 girls) were recruited from three classes in three public schools in Shijiazhuang, a city in Hebei Province. Above 99% of the population in Shijiazhuang were Chinese (Hebei Provincial Bureau of Statistics, 2009). The mean ages of the participants for the American and Chinese samples were 10.54 and 10.45, respectively. There were no significant differences across the two samples regarding gender ($\chi^2(1) = 1.47, p = .23$) and age ($t(271) =$

-1.26, $p = .21$).

Procedures

Parental consent and children's assent were obtained before the study was conducted. Participation rates were 98% in the three Chinese classes and 100% in the six American classes, respectively. The study was integrated into a multicultural education program in the American schools, accounting for the high participation rate. In both countries, students were asked by a researcher to complete a set of questionnaires in their classroom during a regular class period. To eliminate the time effect on teacher-student relationship, data collection in both countries was conducted three months after the fall semester started.

Measures

The questionnaires were in English for American students and in Chinese for Chinese students. Back-translation procedures (Brislin, 1970) were adopted to ensure conceptual equivalence across languages. The questionnaire was translated from English into the Chinese by a bilingual graduate student and then translated back to English by another bilingual graduate student. The back-translated and original questionnaires were compared and points of divergence were noted. The translation was then corrected to more accurately reflect the original questionnaire in English.

Affective meaning of teacher controlling behaviors. The students were asked to respond to two scenarios. Each scenario described a specific teacher controlling behavior. Specific behaviors were used in the present study to minimize ambiguity. If the students were asked how much they thought that their teachers were controlling, they might have referred to different behaviors when they answered the question. As a result, their responses might not

be comparable. To avoid this problem, students' responses were anchored to the same specific controlling behaviors instead of broad constructs of teacher disciplinary styles.

The two scenarios of teacher controlling behaviors were taken from the *Problems in Schools Questionnaire* (Deci, Schwartz, Sheinman, & Ryan, 1981). This questionnaire contained eight scenarios describing the motivation-related problems that students might have in schools. For each scenario, there were four approaches which teachers or parents might adopt. These approaches ranged from highly controlling to highly autonomy-supportive. Given the focus of the present study, the two scenarios that focused on students' academic achievement were selected. In addition, only the highly controlling approach was presented. Scenario 1 described a teacher asking a student to stay after school to complete assignments that had not been submitted on time. Scenario 2 described a teacher asking a student who had spelling trouble to do spelling exercises repeatedly and rewarded that student when he/she improved. As the linguistic system is different in China, spelling trouble was replaced by "trouble in writing correct characters" in the Chinese questionnaire.

The students were asked how they would feel if their homeroom teachers acted in the manner described in the scenarios. On a 6-point Likert scale ranging from 1 (*disagree strongly*) to 6 (*agree strongly*), they indicated how much they agreed the following 12 emotions described their feelings accurately: loved, controlled, looked after, warm, hurt, angry, manipulated, protected, mad, cared for, sad, and grateful.

Students' ratings on the 12 emotions were averaged across the two scenarios. These 12 average ratings were used to indicate how the students felt about the teacher behaviors described in the scenarios. To identify the dimensions shared by both the Chinese and the U.S.

samples, principal axis factoring analysis with oblique rotation was conducted on the 12 emotions with the entire sample of 273. The analysis resulted in two factors, corresponding to 6 items in Control/Hurt and 6 items in Love/Care (see Table 1). In fact, separate principal axis analyses on the 12 emotions with the Chinese and the U.S. samples suggested the same factor structures. The Cronbach's alphas were .91 and .81 for Control/Hurt Factor in the Chinese and the U.S. samples, respectively. The Cronbach's alphas were .92 and .88 for the Love/Care Factor in the Chinese and the U.S. samples, respectively. Bartlett factor scores (Hershberger, 2005) instead of scale scores were used to indicate the students' ratings on these two factors. Factor scores were preferred over scale scores because different weights of the items were taken into the consideration and the correlation between the two factors was retained.

Similarity of teachers' behaviors. As the scenarios were derived from a questionnaire developed in the U.S. (Deci, et al., 1981), it is important to see whether they had comparable prevalence in both cultures. If not, the emotional responses of Chinese students might be towards teacher unusual practices instead of controlling behaviors. To check whether the teacher behaviors were usual or unusual, the students were asked to indicate how their homeroom teachers and the teacher in the scenarios were alike on a 5-point Likert scale ranging from 1 (*not alike at all*) to 5 (*very much alike*). The students did the rating for each scenario and the average of the two ratings was used to indicate the similarity of their homeroom teachers and the teacher in the scenarios. The correlation coefficients of the ratings for the two scenarios were .38, $p < .001$ and .49, $p < .001$ for the Chinese and the U.S. samples, respectively.

Internalization. This was measured by 12 items adapted from the *Internalization Scale* (Tong & Lam, 2011). The scale assessed the extent to which the students agreed with their teacher's values and were willing to endorse their teacher's advice (e.g., "I found my teacher's demands on me reasonable"). The students indicated their agreement with each statement on a 6-point scale ranging from 1 (*disagree strongly*) to 6 (*agree strongly*). The mean score of the 12 items was used as an index of internalization. A high score indicated high internalization. Cronbach's alphas were .90 and .86 for the Chinese and the U.S. samples, respectively.

Social-emotional relatedness. To assess teacher-student relatedness, five items were selected from the *Teacher as Social Context Questionnaire* (Belmont, Skinner, Wellborn & Connell, 1992). Two items tapped *Affection* (e.g. "My teacher likes me"); one tapped *Attunement* (e.g. "My teacher knows me well"), and two tapped *Dedication of Resources* (e.g. "My teacher spends time with me"). Students reported how much they agreed that the items described their homeroom teachers accurately on a 6-point Likert scale ranging from 1 (*disagree strongly*) to 6 (*agree strongly*). The mean of the five items indicated teacher-student relatedness. A high score indicated high relatedness. Cronbach's alphas were .80 and .85 for the Chinese and the U.S. samples, respectively.

Student motivation. This was measured by four items adapted from the *Behavioral Engagement subscale* of the *Engagement versus Disaffection with Learning Questionnaire* (Skinner, Kindermann, & Furrer, 2009). The four items that were related to engagement in class were selected (e.g., "In class, I work as hard as I can"). The students were required to indicate how much they agreed the four items described accurately their efforts, attention,

and persistence in their homeroom teacher's class on a 6-point Likert scale from 1 (*disagree strongly*) to 6 (*agree strongly*). The mean score of the four items was used as an index of learning motivation. A high score indicated high learning motivation. Cronbach's alphas were .80 and .82 for the Chinese and the U.S. samples, respectively.

Results

Intraclass Correlation

As six American classes and three Chinese classes were involved in the present study, different homeroom teachers might have caused systematic differences of teacher-student relatedness across classes. If the between-class variance was large, pooling the classes for analyses may cause bias. Therefore, hierarchical linear modeling analysis was employed to test the intraclass correlation of relatedness. The results indicated that the variances in relatedness resided between classes were 0.4% for the Chinese sample and 1.1% for the U.S. sample, respectively. As the between class variance was small, the participants were treated independently by pooling the classes together for each sample.

Measurement Equivalence

Before making cross-cultural comparisons, the equivalence of measurement or comparability of the constructs across the two samples needed to be established (Cheung & Rensvold, 2000; Little, 1997; Steenkamp & Baumgartner, 1998). To address these issues, analyses of multiple-group structural equation modeling (SEM) were conducted with AMOS 16.0 (Arbuckle, 2007). Two steps were followed. First, an unconstrained model with all the parameters free for the two cultural groups was tested. Second, the constrained model was tested across two cultural groups by placing equality on the factor loadings. Comparative Fit

index (CFI), Tucker-Lewis index (TLI), Incremental Fit Index (IFI) and Root Mean Square Error of Approximation (RMSEA) were used to assess the model fit. CFI, TLI and IFI with values greater than .90 and less than .95 are generally considered acceptable, with values greater than .95 suggesting good fit. $RMSEA < .05$ indicates a good fit of the model, $.05 < RMSEA < .10$ an adequate fit, and $RMSEA > .10$ a poor fit.

Construct comparison of internalization. For the measure of internalization, both the unconstrained and the constrained models fit the data well (unconstrained model: CFI = .95, IFI = .96, TLI = .94, RMSEA = .043; constrained model: CFI = .95, IFI = .95, TLI = .95, RMSEA = .042), $\Delta\chi^2(11) = 15.4, p = .16$. The results suggested that the unconstrained model did not fit the data better than the constrained model, suggesting equivalence in factor loadings on internalization.

Construct comparison of social-emotional relatedness. For the measure of social-emotional relatedness, both the unconstrained and the constrained models fit the data well (unconstrained model: CFI = .99, IFI = .99, TLI = .99, RMSEA = .033; constrained model CFI = 1.00, IFI = 1.00, TLI = .99, RMSEA = .024), $\Delta\chi^2(4) = 3.3, p = .51$. The results indicated that the unconstrained model did not fit the data better than the constrained model, suggesting equivalence in factor loadings on relatedness.

Construct comparison of motivation. For the measure of motivation, both the unconstrained and constrained models fit the data well with CFI, IFI and TLI (unconstrained model: CFI = .97, IFI = .97, TLI = .90; constrained model: CFI = .96, IFI = .96, TLI = .93), but only marginally with RMSEA (unconstrained model: RMSEA = .10; constrained model: RMSEA = .09), $\Delta\chi^2(3) = 6.2, p = .10$. The results indicated that the unconstrained model did

not fit the data better than the constrained model, suggesting equivalence in factor loadings on motivation.

Construct comparison of affective meanings in the scenarios. Multiple-group SEM analyses were conducted to examine the factorial invariance of the two factors: Control/Hurt and Love/Care. Both the constrained model and the unconstrained model had acceptable fit (unconstrained model: CFI = .94, IFI = .94, TLI = .91, RMSEA = .065; constrained model: CFI = .92, IFI = .92, TLI = .89, RMSEA = .071). However, the chi-square difference test indicated that the unconstrained model fit the data better than the constrained model ($\Delta\chi^2(10) = 47.6, p < .001$). Although $\Delta\chi^2$ indicated the unconstrained model fit the data better than the constrained model, this constrained model, which indicated partial invariance, was accepted after examining the following three pieces of evidence. First, the CFIs, IFIs, TLIs and RMSEAs in the constrained and unconstrained models were all acceptable. Second, the change in Δ TLI was smaller than .05 (Little, 1997). Third, the constrained model fit the data better than the completely constrained model with all the parameters specified as invariant (CFI = .85, IFI = .85, TLI = .83, RMSEA = .09, $\Delta\chi^2(27) = 165.8, p < .001$).

Descriptive statistics and correlations

Means, standard deviations, and interrelations among the variables are presented in Table 2. The two groups were not significantly different in most of the variables including similarity. This means the scenarios were comparable across the two cultures. The two groups were significantly different in only two variables. American students had more feeling of Control/Hurt than Chinese students, $t(269) = -2.66, p = .008$. In addition, they reported less motivation in their teachers' class, $t(271) = 2.98, p = .003$. The correlation patterns among the

variables were quite consistent across the two groups. Although the magnitude of association might be slightly different for some variables across the two groups, none of the differences was significant statistically. It is noted that in both groups, internalization, relatedness and motivation were correlated negatively with the Control/Hurt Factor but positively with the Love/Care Factor.

Hypotheses 1 and 2

To test hypotheses 1 and 2, two-way MANOVA was performed to examine the differences in the Love/Concern and Control/Hurt Factors between the two cultural groups as well as the groups with high and low social-emotional relatedness. A median split was used to divide each cultural group into high and low relatedness group. The results showed that the multivariate effect were significant for culture, Wilk's lambda = .96, $F(2, 266) = 4.94$, $p = .008$. It was also the case for relatedness, Wilk's lambda = .84, $F(2, 266) = 24.6$, $p < .001$. However, the interaction effect between culture and relatedness was nonsignificant, Wilk's lambda = 1.00, $F(2, 266) = .18$, $p = .83$.

Figure 2 presents the centroids of the factor scores for the four groups that were under examination: Chinese group with high relatedness, Chinese group with low relatedness, U.S. group with high relatedness, and U.S. group with low relatedness. It is noted that the 12 emotion items loaded on the two factors which had a correlation of $-.64$ and were at angle of about 130° to each other.

A follow-up ANOVA showed that the main effect of culture was in the Control/Hurt Factor, $F(1, 267) = 9.34$, $p = .002$. Consistent with Hypothesis 1, U.S. students reported a significantly stronger feeling of being controlled than Chinese students. ($M_{U.S.} = .20$, $SD = .96$,

$M_{\text{Chinese}} = -.15, SD = 1.12$). Such a cultural difference was not found in the Love/Care Factor, $F(1, 267) = .86, p = .36$. Consistent with Hypothesis 2, significant differences were observed across the groups with different teacher-student relatedness on both factors (Control/Hurt Factor: $F(1, 267) = 22.00, p < .001$; Love/Concern Factor: $F(1, 267) = 47.67, p < .001$). Students with high relatedness reported stronger feelings of being cared for and loved ($M_{\text{high relatedness}} = .39, SD = .96, M_{\text{low relatedness}} = -.44, SD = .97$) and weaker feelings of being controlled and hurt ($M_{\text{high relatedness}} = -.27, SD = .94, M_{\text{low relatedness}} = .30, SD = 1.11$).

Hypothesis 3

To test Hypothesis 3 and address the Chinese classroom paradox, mediation analysis was conducted to examine whether students' feeling of being controlled can explain the motivation differences between the two cultural groups. The bootstrapping method suggested by Preacher and Hayes (2004) was used to test the mediation. Bootstrapping method makes no assumption of a normal sampling distribution (Preacher & Hayes, 2004; Shrout & Bolger, 2002) and minimizes the numbers of multiple regressions in the conventional approaches. Therefore, it reduces the power problem associated with the conventional approach and the likelihood of Type I error. In the analyses, the U.S. group was coded as 0 and the Chinese group was coded as 1. Motivation was entered as the dependent variable, Culture as the predictor, and feeling of Control/Hurt as the mediator with the SPSS macro provided by Preacher and Hayes (2004). The results indicated that the total effect of culture was significant (total effect = .36, $p = .004$). The indirect effect of culture on motivation through the mediator Control/Hurt was significant with the estimation from 3000 bootstrap resamples. The estimated mean of coefficients was .08 with a 95% confidence interval (CI) of 0.02 to

0.17. The direct effect of culture on motivation remained significant when the mediator Control/Hurt was included (direct effect = .28, $p = .02$). In sum, the results indicated that the feeling of Control/Hurt partially mediated the association between culture and students' learning motivation (See Figure 3).

Hypothesis 4

One purpose of the present study was to explore the role of internalization. Hypothesis 4 states that internalization may be the mechanism through which relatedness has an impact on motivation. To test this hypothesis, mediation analysis with bootstrapping method was performed with each cultural group. The results indicated that in both samples, the total effect of relatedness on student motivation was significant (Chinese sample: total effect = .33, $p < .001$; U.S. sample: total effect = .50, $p < .001$). The bootstrap results of 3000 resamples also indicated that in both samples, internalization mediated the impact of relatedness on motivation. In the Chinese sample, indirect effect of relatedness on motivation through the mediator internalization was significant (mean of coefficients = .12, 95% CI = 0.02 - 0.23). In the U.S. sample, such indirect effect was also significant (mean of coefficients = .38 95% CI = .21 - .58). However, the results about the direct effect of relatedness on motivation were different between the two cultural groups. In the Chinese sample, the direct effect of relatedness on motivation remained significant when the internalization mediator was included in the model (direct effect = .21, $p = .004$). In contrast, the direct effect of relatedness on motivation became nonsignificant in the U.S. sample when internalization was included (direct effect = .12, *n.s.*). These results indicated that the mediation was partial in the Chinese sample (see the upper panel in Figure 4) but complete in the U.S. sample (see the lower panel

in Figure 4).

Discussion

The present study addressed the Chinese Classroom Paradox by examining the cultural differences in student perceptions of teacher controlling behaviors. It also investigated the universal roles of social-emotional relatedness and internalization in motivation. Consistent with the hypotheses, the results showed that the same controlling behaviors of teachers had different affective meanings for Chinese and American students and for students with different levels of teacher-student relatedness. Specifically, the present study showed that Chinese students perceived less feeling of being controlled and hurt than their American counterparts. In addition, regardless of culture, all students with a high level of teacher-student relatedness tended to see the teacher behaviors as less controlling and more loving than their counterparts with a low level of teacher-student relatedness. The results also indicated that feelings about being controlled could explain the motivation differences between the two cultural groups. Students from the U.S. felt more controlled by their teachers, and in turn reported less motivated in their teachers' class. In contrast, students from China felt less controlled by their teachers, and in turn reported more motivated in their teachers' class. In addition, the results also revealed that internalization mediated between relatedness and motivation. In both cultures, students with high teacher-student relatedness were more willing to internalize teacher's guidance, values, and expectations, which in turn motivated them to work harder in school. Despite these cultural similarities, cultural differences were also found in the mediation effect. While a complete mediation effect was found in American students, a partial mediation effect was found in Chinese students. These findings showed

both cultural differences as well as similarities in the process of internalization. Taken together, the findings of the present study shed light on the Chinese Classroom Paradox. They also reveal the cultural similarities and differences in the psychological mechanism related to social-emotional relatedness, internalization, and motivation.

Cultural Differences in the Meanings of Controlling Behaviors

Whether Chinese teachers are controlling or not is in the eyes of the beholders. Unlike studies that focused on outsider observations and broad constructs of teacher disciplinary styles, the present study focused on student perceptions of specific teacher controlling behaviors. This approach provides evidence for both cultural universality and specificity in the psychological processes of autonomy, social-emotional relatedness, internalization, and motivation. In the present study, Chinese students reported less feeling of being controlled than their American counterparts for the same controlling behaviors of their teachers. Such differences can be attributed to the internalization of cultural values giving different emphasis to autonomy in collectivistic and individualistic culture respectively. According to SDT, the more fully an external value or regulation is internalized, the more it becomes part of the integrated self (Ryan & Deci, 2002). The regulations integrated with the self are the basis for autonomous self-regulation. When the practices were internalized, the cultural practices could be autonomously enacted by individuals (Chirkov et al., 2003).

With the influence from Confucianism, Chinese people highly value filial piety, hard work, and education. It is the cultural norm to show loyalty and obedience toward authority figures such as parents and teachers. Chinese students are expected to accept the demands of their teachers on them. When they have integrated the external regulations set by their

teachers into their autonomous self-regulation, they tend not to perceive their teachers' behaviors as controlling. Unlike Chinese culture that emphasizes compliance and conformity, American culture values independence and autonomy. American students may not as readily accept the demands of their teachers as the Chinese students do. As a result, they may report stronger feelings of being controlled when their teachers make demands on them. These differences are very likely the cultural adaptation to environment as suggested by Chang et al. (2011).

Cultural Universality of Relatedness

Despite the present study showing cross-cultural differences in student perceptions of teacher controlling behaviors, it also revealed cross-cultural similarities in matters of social-emotional relatedness. Disregarding culture, the results across the two scenarios indicated that students with high (vs. low) social-emotional relatedness with their teachers reported more positive and less negative feelings towards the same controlling behaviors of their teachers. Student perceptions of teacher controlling behaviors depended largely on the level of the teacher-student relationship. This was so for both Chinese and American students.

A sense of being cared for and connected with the other is the impetus for internalization (Ryan & Deci, 1985). A better relationship with teachers can help children identify with their teachers. As a result, the students are more willing to internalize the values and beliefs of their teachers. Teacher behaviors that seem relatively controlling on the surface may not be negatively experienced by students who have internalized their teachers' values and beliefs. They are only experienced as such when these behaviors are not internalized by the students.

Cultural Similarities and Differences in Internalization

In the present study, students' internalization was found to mediate between relatedness and motivation, regardless of culture. The results showed that relatedness facilitated internalization, which in turn helped to maintain learning motivation. Internalization accounted for the effect of relatedness on motivation in both American and Chinese students. Despite these cultural similarities, the complete mediation model found in American students and the partial mediation model found in Chinese students suggest some cultural differences. Internalization did not mediate completely between relatedness and motivation in Chinese students. Other mediators may be involved. Moral obligation may be such a mediator.

In Chinese culture, the goal of learning entails not only academic pursuit but also moral striving such as self-perfecting through learning (Lee, 1996; Li, 2002; Yu, 1996) and honoring parents and teachers (Li & Fischer, 2004). The old Chinese idiom, "*Once my teacher, forever my parent*" (*yiri weishi zhongshen weifu*), indicates that students should respect teachers like their parents, even though the teacher may have only taught them for one day. Chinese students usually feel indebted to their teachers and that they should repay or "*baoda*" their teachers (Tao & Hong, 2000). Close relatedness may promote such students' feeling of indebtedness to teachers and their desire to show gratitude to them. When feeling that they have to repay or "*baoda*" their teachers, students may also be motivated to work hard even though they do not necessarily agree with every word their teachers say or every value their teachers advocate. For example, a student may not internalize his science teacher's preference for science over the humanities, yet he may still work hard in his science class if he feels that he should repay or "*baoda*" his science teacher. It is possible for Chinese students to be highly motivated without internalizing their teachers' words or behaviors.

However, such moral obligation to teachers may not be strong among American students. This may explain why internalization completely mediated between social-emotional relatedness and motivation among the American students in the present study.

Psychological Control and Behavioral Control

In the literature of parenting, many researchers have focused on two types of control, namely psychological control and behavioral control (Barber, 1992; Barber, Stolz, Olsen, Collins, & Burchinal, 2005). The former is exerted over children's thoughts and feelings in the psychological world and intrudes upon their sense of self, whereas the latter is exerted over children's activities and behaviors in the physical world and provides them with needed guidance. Some researchers have argued that the effects of parental control depend on whether a specific parental behavior is intended to exercise control over the child's behavior or the child's psychological world (Barber, Olsen, & Shagle, 1994; Wang, Pomerantz, & Chen, 2007). In other words, the effects depend on whether the control is behavioral control or psychological control. If it is the former, the effect is likely to be positive, but if the latter, the effect is likely to be negative.

Nevertheless, the results of the present study suggest that whether the control is behavioral or psychological is subject to the perceptions of the children, not simply the intention of the persons who exercise the control. What is psychological control or behavioral control depends on the perception of the children and the extent of internalization. However, there may be a boundary for internalization since not all demands can be internalized. Control may manifest itself in different degrees of severity along a continuum ranging from completely unregulated to extreme levels of control. A mild form of control lends itself to

internalization and may not necessarily be perceived as intrusiveness, coercion, or manipulation. However, internalization can hardly take place under conditions of extreme levels of controls. Despite the fact that interpersonal relatedness can facilitate internalization, not all demands can be internalized. For example, children may find it hard to internalize parental control at the extreme end of the continuum, such as absolute compliance backed up by corporal punishment. Internalization may have its limits. There may be some kinds of controlling behaviors that can not be internalized with the support of relatedness.

Contributions and Implications

A unique feature of the present study is its focus on children's direct emotional responses to specific teacher controlling behaviors. Such a design pre-empts the ambiguity of the broad constructs and incomparability of children's responses. By focusing on the same specific teacher controlling behaviors, the present study revealed cultural differences in how these are viewed by Chinese and American students respectively. Chinese students tend not to see the same specific teacher controlling behaviors as controlling as American students.

The results of the mediation model provided empirical evidence for the universal process of internalization (Ryan, Connell, & Deci, 1985). This sheds light on the inconsistent findings about autonomy-supportive and controlling practices in cross-cultural research. The paradox found in the Chinese classroom may be due to the differences in students' perceptions of teacher controlling behaviors in different cultures. However, there are cultural similarities for how students' perceptions are formed and how social-emotional relatedness and internalization contribute to students' motivation in learning.

The results of the present study have important practical implications for educators in

China and the U.S. First, social-emotional relatedness between teachers and students is important to children's learning. This is particularly important when teachers cannot follow children's initiatives, and when teachers want children to engage in learning activities that are not intrinsically motivating to them. A close teacher-student relationship influences students' perceptions of their teacher's "controlling" behavior. Closeness with teachers helps students to internalize their teachers' message and reduce their feelings of being controlled and manipulated. There are many ways to promote teacher-student relationship. Teacher educators can emphasize the importance of teacher-student relationship in their teacher education programs. This practice will enhance the awareness of pre-service teachers. In addition, in-service teachers can adopt positive behavior support system that is advocated widely by school psychologists (Horner, Crone, & Stiller, 2001). The use of positive behavior support decreases the need for more intrusive or aversive intervention (i.e., punishment or suspension) that is harmful to teacher-student relationship.

Second, the findings have significant implications for teachers and school administrators. The use of control may not hold the same meanings in different cultures. Thus, while adopting certain teaching paradigms or avoiding others, teachers and school administrators should take cultural factors into consideration. A simple program that aims at promoting one universal teaching paradigm may limit its effectiveness across cultures. As Chang et al. (2011) argued, compliance and conformity may be adaptive learning strategies of students in Eastern culture. The extension of this argument may imply that the "controlling" behaviors in the eyes of Western observers may also be adaptive teaching strategies of teachers in Eastern culture. It is important to understand the affective meanings of these "controlling" behaviors

from a cultural perspective. To work with students from diverse cultural backgrounds, teachers need be culturally sensitive.

Limitations and Future Directions

Although the present study has enhanced the understanding of the universal importance of social-emotional relatedness and internalization, it has some obvious limitations. First, the cross-sectional design of the present study could not explain the temporal order of the variables (MacKinnon, Fairchild, & Fritz, 2007). As all the investigations were carried out at one point in time, it is difficult to defend the directional effect of the variables. The findings suggested a mediation model in which relatedness was the independent variable and motivation was the outcome variable. However, there might be other alternative models that could fit the data as well. One could argue that motivation might be the independent variable and relatedness the outcome variable. A longitudinal study with variables tested in sequence could be used to delineate the temporal order of the variables.

Second, it was inferred from the partial mediation model that there was a unique moral obligation path between relatedness and learning motivation in Chinese culture. However, students' moral obligation was not measured in the present study. Therefore, there is no empirical evidence to support this speculation. A future study investigating students' moral obligation could provide a clearer picture of the underlying mechanisms between relatedness, internalization, and motivation in Chinese culture.

Third, the evidence for the measurement invariance of affective meanings across the two cultures was mitigated because chi-square difference test indicated that the unconstrained model fit the data better than the constrained model. Although some other evidence supported

the constrained model that indicated partial invariance, it is more desirable if the evidence for the measurement invariance was stronger.

Lastly, although the present study demonstrated the power of internalization in student motivation, it did not address its boundary issues. As discussed earlier, not every form of controlling behavior can be internalized with the support of relatedness. Internalization may have its limits. There is a need for future studies to map out these boundaries.

Conclusion

In sum, the findings suggest that the same behaviors of teachers may elicit different emotional responses in students with different cultural backgrounds and different levels of teacher-student social-emotional relatedness. Chinese teachers' behaviors that are perceived to be controlling by Western observers may not be perceived as such by Chinese students. The culturally specific meanings of teacher behaviors provide a promising solution to the Chinese Classroom Paradox. In addition, the universal process of internalization in learning motivation further supports the importance of social-emotional relatedness in different cultures.

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Table 1

Results of Principal Axis Factoring Analyses of 12 Affective Responses in the Two Scenarios

	Factors	
	Control/Hurt	Love/Care
Sad	.62	-.04
Controlled	.84	.18
Hurt	.75	.05
Angry	.74	-.11
Manipulated	.69	-.04
Mad	.67	-.18
Looked after	-.00	.69
Warm	-.12	.74
Loved	-.04	.74
Protected	.19	.87
Cared for	.00	.84
Grateful	-.13	.71

Table 2

Means, Standard Deviations and Zero-order Correlations of the Variables

Variable	American Mean (SD)	Chinese Mean (SD)	1	2	3	4	5	6
1. Control/Hurt	.20 ^a (0.96)	-.15 ^a (1.12)	--	-.60***	.03	-.52***	-.36***	-.20*
2. Love/Care	-.03 (0.97)	.02 (1.11)	-.50***	--	.21**	.55***	.47***	.22**
3. Similarity	3.15 (1.08)	3.12 (1.02)	-.20*	.28**	--	.09	.04	.11
4. Internalization	4.49 (0.82)	4.61 (0.93)	-.47***	.49***	.23*	--	.62**	.41**
5. Relatedness	4.17 (1.10)	4.01 (1.21)	-.39***	.47***	.11	.70**	--	.42**
6. Motivation	4.43 ^b (1.03)	4.78 ^b (0.95)	-.33***	.34***	.10	.68***	.54***	--

Note. The correlations for Chinese sample are presented above the diagonal; those for American sample are presented below the diagonal.

*** $p < .001$, ** $p < .01$, * $p < .05$. Means sharing the same superscripts were significantly different across the two cultures.

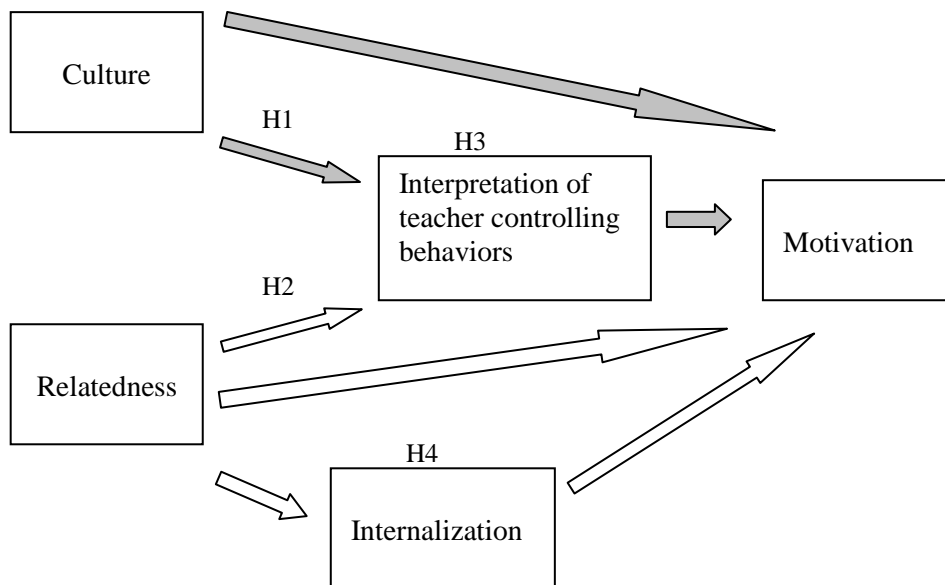


Figure 1. The hypotheses and conceptual relations among the constructs. The grey arrows represent the culturally specific path from culture to the interpretation of teacher controlling behaviors and then to motivation. The white arrows represent the culturally universal path from relatedness to internalization and then to student motivation.

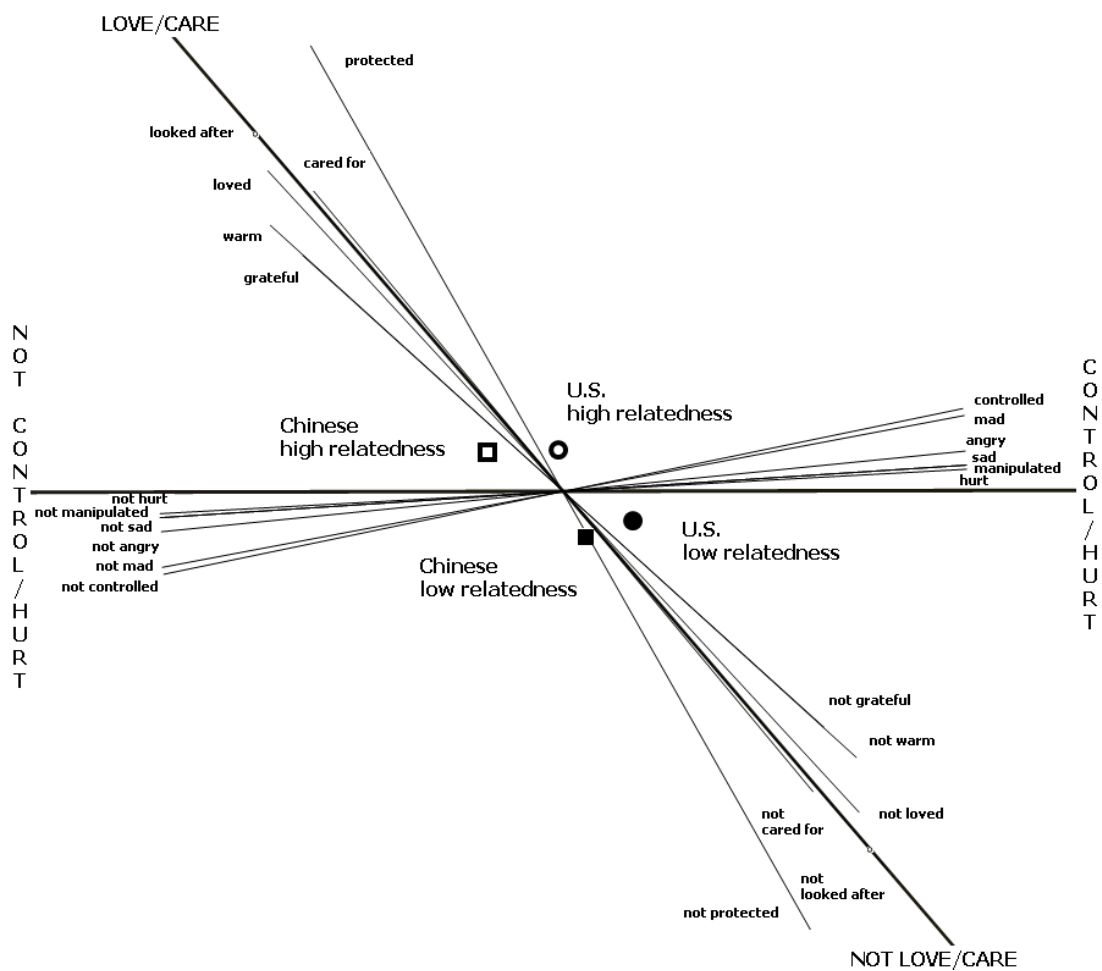


Figure 2. Principal axis factoring plot with the centroids of the four groups of students

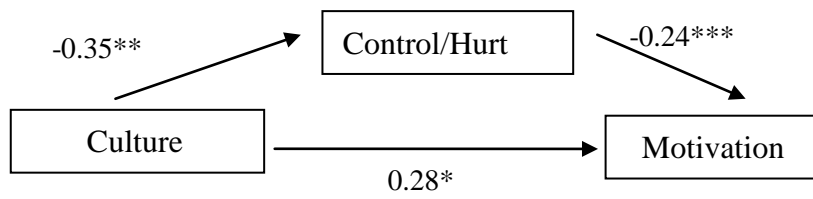
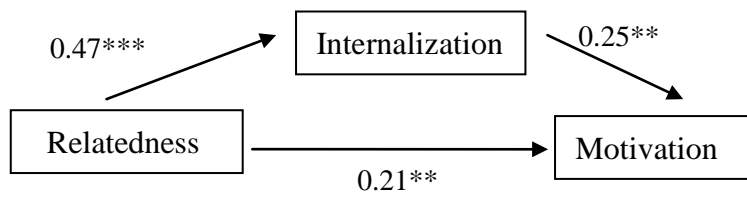


Figure 3. Mediation model with culture as the independent variable, Control/Hurt as the mediator and motivation as the outcome variable.

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

Chinese sample



U.S. sample



Figure 4. Mediation model with relatedness as the independent variable, internalization as the mediator and motivation as the outcome variable.

** $p < .01$. *** $p < .001$.