



The importance of autonomy for rural Chinese children's motivation for learning

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ABSTRACT

Two studies applied self-determination theory (SDT) to investigate the motivation for learning of rural Chinese children. The aim was to test whether findings from studies in western individualist cultures would hold up within a very different, eastern collectivist setting. In the first study, when students' autonomous and controlled motivation for a course were entered simultaneously in a regression analysis, autonomous motivation uniquely positively predicted students' perceptions of interest, competence, and choice in the course, whereas controlled motivation uniquely negatively predicted perceptions of interest and choice. In the second study students' perceptions of instructors' autonomy support during the course predicted changes in autonomous motivation, controlled motivation, and perceived competence. These results were discussed in terms of SDT and culture.

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Over the past few decades, numerous researchers have examined the influence of cultural factors on students' motivation for learning based on the assumption that children acquire their needs, values, and attitudes from their cultures (e.g., [Brickman & Miller, 2001](#)). According to this perspective, for example, western individualist cultures such as the U.S. strongly value autonomy so they raise their children to develop a strong need for autonomy, whereas eastern cultures such as China more strongly value the collective so they raise their children to develop a strong need for belonging to the collective, with little or no need for autonomy. Thus, children from collectivist cultures are expected to act in accord with social norms in order to be accepted by the collective.

Self-determination theory (SDT; [Deci & Ryan, 2000](#)), in contrast, maintains that there is a small set of universal psychological needs, including both autonomy (i.e., volition) and relatedness (i.e., belongingness), that are essential for optimal learning and well-being in eastern as well as western societies (e.g., [Hahn, & Oishi, 2006](#); [Sheldon, Elliot, Kim, & Kasser, 2001](#); [Sheldon & Filak, 2008](#)). In other words, SDT proposes that people will be psychologically healthier and more effective in learning contexts to the extent that they satisfy their inherent needs for both autonomy and relatedness. This claim that autonomy is important for individuals in all cultures regardless of their culture's values has led various theorists (e.g., [Ford, 1992](#); [Iyengar & DeVoe, 2003](#); [Markus, Kitayama, & Heiman, 1996](#)) to be critical of the SDT perspective, implying that it is insensitive to cultural differences, because eastern cultures do not value autonomy.

The current study examined children's autonomous motivation for learning in a rural Chinese context, a context in which many researchers would claim that the experience of autonomy is essentially irrelevant. The SDT perspective proposes that, when these students are more autonomous – that is, when they fully endorse their behaviors rather than feeling controlled to do them – the students will evidence greater well-being and better adjustment in their school settings. Autonomous motivation involves acting volitionally and is contrasted with controlled motivation, which involves acting with a sense of pressure from either external or internal sources to comply with demands and norms. According to [Ryan and Deci \(2000\)](#), when people fully concur with and endorse the personal relevance of a behavior, the behavior will be enacted relatively autonomously and the people will experience a sense of volition and willingness. Controlled motivation, in contrast, involves being coerced or seduced by external or internal pressures, and tends to be executed with a sense of pressure, obligation, and resistance.

1. Self-determination theory

SDT (e.g., [Deci & Ryan, 1985](#)) has specified four types of controlled and autonomous motivations or reasons for intentional actions. Controlled motivation comprises *external regulation* by reward and punishment contingencies, and *introjected regulation* in which people behave because they feel they *should* and not because they want to. In comparison, autonomous motivation comprises identified/integrated regulation, which occurs when people own the regulation of behaviors as being personally important to themselves, and *intrinsic motivation*, which involves doing an activity out of interest because it is rewarding in its own right. These four types of motivation or regulation – external, introjected, identified/integrated, and intrinsic – are ordered

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from highly controlled (external regulation) to highly autonomous (intrinsic motivation). Introjected regulation is more autonomous than is external regulation, but it is less autonomous than is identified regulation, and so on.

Numerous studies (see Reeve, Deci, & Ryan, 2004) in various learning settings with western samples have shown that autonomous motivation is associated with positive outcomes, including, for example, interest in course material, conceptual understanding, and classroom adjustment among elementary students (e.g., Grolnick & Ryan, 1987; Ryan & Connell, 1989), and achievement and adjustment among college students (e.g., Black & Deci, 2000), suggesting that autonomy is important for learning and adjustment. However, several researchers (e.g., Ford, 1992; Iyengar & DeVoe, 2003; Markus & Kitayama, 1991, 2003) have argued that the experience of autonomy is less congruent with eastern cultures that embrace collectivist (instead of individualist) values (Triandis, 1995) and have an interdependent (instead of an independent) view of self (Markus & Kitayama, 1991), suggesting that autonomy is not important for school outcomes in cultures such as China.

To understand the SDT perspective that autonomy is essential for adjustment and well-being in all cultures, it is important to note that autonomy, which in SDT means acting with the experience of volition and full endorsement of one's actions, does not mean to act independently of others or of environmental influences, as some theorists have claimed (e.g., Bandura, 1989). People's need for relatedness leads them to want, to some degree, to be dependent on trusted others rather than fully independent of them, but their need for autonomy also leads them to want to experience a sense of volition and choice about their dependence and their behavior. In eastern countries such as China which stress conformity, SDT maintains that it is the degree of subjective endorsement and ownership of the norms that determines whether the conformity constitutes authenticity and self-determination versus alienation and coercion. As a consequence, in the process of acting in accord with societal norms and expectations, one does not necessarily feel controlled in one's actions (and hence might not experience low levels of self-determination).

Thus, from the SDT perspective, the needs for autonomy and relatedness are complementary, not antagonist, and hence it is expected that rural Chinese children like any other children will evidence psychological benefits to the degree that they are more autonomous and less controlled.

The few studies examining autonomy among students in eastern cultures support this proposition. In a study of fifth-grade Japanese students, Yamauchi and Tanaka (1998) found that students' autonomous motivation related positively to their self-esteem. Chirkov, Ryan, Kim, and Kaplan (2003) found that the degree to which South Korean (as well as Russian, Turkish, and American) college students were autonomous when enacting cultural values was positively related to the students' psychological health. Vansteenkiste, Zhou, Lens, and Soenens (2005) in a sample of young Chinese adults found that autonomous motivation for studying positively predicted academic success and well-being. The relations between autonomy and psychological well-being (e.g., Chirkov et al., 2003) have held up whether the students were reporting on behaviors consistent with collectivist or individualist cultures (Triandis, 1995).

1.1. Autonomy support

SDT further proposes that students' autonomous and controlled motivations are substantially influenced by the degree to which instructors create an autonomy-supportive versus controlling learning climate within the classroom (Deci & Ryan, 2002). The concept of *autonomy support* (Deci & Ryan, 1985) means that an individual in a position of authority (e.g., an instructor) takes the others' (e.g., the students') perspectives, acknowledges the others' feelings, and provides the others with pertinent information and opportunities

for choice, while minimizing the use of pressures and demands. Autonomy support includes offering choices, encouraging independent problem solving, involving students in decision making, and minimizing the use of pressure (e.g., Reeve, 2006; Reeve, Bolt, & Cai, 1999). Overall, autonomy support revolves around finding ways to nurture, support, and increase students' inner endorsement of their classroom activity (Reeve et al., 2004). In contrast, a controlling authority pressures others to behave in particular ways, through either coercive or seductive techniques that generally include implicit or explicit rewards or punishments. An example would be an instructor telling students they have to solve problems in a particular way in order to get a good grade or conveying what they should do to be considered worthy.

Considerable research has related autonomy support from teachers and parents to students' educational outcomes, such as perceived competence, motivation, and performance (e.g., Black & Deci, 2000; Deci, Schwartz, Sheinman, & Ryan, 1981; Grolnick & Ryan, 1987). For example, when classroom climates are autonomy-supportive, the students tend to be better adjusted than when the climates are controlling. This general finding has, to some extent, also been observed in eastern cultures (Chirkov & Ryan, 2001). For example, Kage (1991) found that when students were controlled with many graded quizzes during a course, they were less intrinsically motivated, felt less competent, and did less well on the final exam than students whose quizzes were used in an autonomy-supportive, informational way without having the quiz grades recorded.

2. The present studies

The goal of the present research was to shed further light on the relevance of the concept of autonomy (i.e., autonomous motivation and autonomy support) in an eastern culture. Mainland China was chosen for this research because it is traditionally viewed as a collectivistic, authoritarian culture, especially in rural areas. A recent field observation study on teacher–child interactions in Chinese classrooms by Jingbo and Elicker (2005) revealed that the teachers usually seemed more concerned with following the classroom rules and pre-planned routines than with the feelings of the children. Indeed, the outstanding characteristics of teachers' behavior towards children were high control and restraint, and the most common characteristics of children's behavior were accepting the control and restraint and showing obedience toward teachers and dependence on teachers' authority.

Such observations seem to provide a basis for Markus and Kitayama's (2003) claim that Asian children “don't appear to suffer any obvious negative consequences of the enormous pressure that is placed on them to achieve; in fact, they flourish” (p. 4). Still, it is unknown whether or not students' volition, motivation, and perceptions of themselves were compromised as they displayed obedient behavior. Our hypothesis, based on SDT, was that the control (as opposed to autonomy support) from teachers would be detrimental to volition and in turn to self-perceptions of classroom adjustment (Ryan & Deci, 2004). Such findings would support the view that autonomy is a general human need, the support of which would enhance students' positive feelings about themselves and their schoolwork.

In the first of two studies, we examined whether Chinese elementary school students' autonomous motivation and controlled motivation were related to their perceived competence, feelings of choice, and interest in their schoolwork. We predicted that in China, as in western cultures, autonomous motivation would positively predict these three classroom adjustment indicators whereas controlled motivation would tend to have negative or null relations to the outcomes.

In the second study, we investigated the benefit of autonomy support for students' motivation and well-being in their classrooms. To our knowledge, no attempt has been made to investigate the importance of classroom autonomy support for Chinese children's self-perceived adjustment. Autonomy support has been found to be beneficial for

individuals' motivation and well-being across developmental periods and age in western samples (e.g., Black & Deci, 2000; Grolnick & Ryan, 1987) and in a sample of young Chinese adults (Vansteenkiste et al., 2005). The present study examined these relations in rural Chinese children. We hypothesized that experiencing the classroom environment as autonomy-supportive would facilitate the students' autonomous motivation and positive self-perceptions, presumably by satisfying their basic need for autonomy.

3. Study 1

The aim of Study 1 was to examine the relations of autonomous and controlled motivations for studying to three classroom-adjustment self-perceptions: (a) students' feelings of competence for learning a particular subject (perceived competence); (b) their feelings of choice about learning the subject (perceived choice); and (c) their interest in the subject (interest). Based on SDT, we predicted that students who were more autonomously motivated for studying would tend to have higher levels of interest, perceived competence, and perceived choice, whereas being more controlled in their motivation would have null or negative associations with these classroom adjustment indicators.

3.1. Method

3.1.1. Participants and procedure

One hundred and ninety-five children in grades 4, 5, and 6 (mean age = 11.95 years, ranging from 9 to 15 years old; 47.7% female) were recruited from different public elementary schools from four rural areas in Mainland China. Their parents were mostly farmers, migrant workers, tradesmen, or homemakers. Parents' education level was variable, but most had not completed middle school. Grandparents raised some of the children.

All students participated on a voluntary basis, with no compensation, by completing a set of questionnaires in their regular school classrooms toward the end of the 2005–2006 school year. The questionnaires were translated from English to Chinese by the first author. Bilingual, Chinese-English speakers did the back-translations. Minor modifications to the wording of some items were done during the translation process to make the scale suitable for use with Chinese students.

The size of participating classes varied from 20 to 40. Students responded to the same set of class-specific questionnaires in either their English or Math classes, with instructors helping them go through each item to avoid possible misunderstanding. Questionnaires included demographic questions and measures tapping students' motivation for learning and classroom adjustment. Completion of each set of questionnaires took about 10 min once the instructions were well understood.

3.1.2. Measures

3.1.2.1. Autonomous and controlled motivation. A 12-item version of the Self-Regulation Questionnaire-Academic developed by Ryan and Connell (1989) was used in this study to assess external, introjected, identified, and intrinsic motivation. Participants were provided with three questions: "Why do I do my English/Math homework?"; "Why do I try to answer hard questions in English/Math class?"; and "Why do I try to learn English/Math well in school?" Each question was followed by four reasons (external, introjected, identified, intrinsic), creating the 12 items that tapped these types of motivation for studying the subject (*viz.*, English or Math). Participants were instructed to indicate their agreement with each item on a 5-point Likert scale ranging from 1 (Not at all true) to 5 (Totally true). An example of an external regulation item is, "so my teacher will say I'm a good student;" and of an introjected regulation item is, "because I will

feel really proud of myself if I do well." An example of an identified regulation item is, "because I want to understand the subject;" and of an intrinsic motivation item is, "because I enjoy English class."

Past research has shown that these four scales form a simplex pattern (Ryan & Connell, 1989) in which a subscale correlates more positively with another that is closer to and correlates less positively (or more negatively) with another that is more distant from it. In some studies intrinsic motivation has correlated negatively with external regulation but in most studies the correlation has been low positive. Further, in many studies the correlates and consequences of introjected motivation have been closer to those of external regulation than to those of identified regulation, and the correlates and consequences of identified regulation have been more similar to those of intrinsic motivation than to those of introjection (see Reeve et al., 2004, for a review). For example, across three samples of children, Ryan and Connell (1989) found (1) that external and introjected regulation tended to correlate similarly to various outcomes, (2) that identified and intrinsic tended to correlate similarly to those outcomes, but (3) that the pattern of correlations for external and introjected to the outcomes was quite different from the pattern of correlations for identified and intrinsic to the outcomes. For this reason, external and introjected regulation have often been combined to form controlled motivation, while identified regulation and intrinsic motivation have been combined to form autonomous motivation (e.g., Vansteenkiste, Lens, Dewitte, De Witte, & Deci, 2004), as we did in this study.

The validity and reliability of this scale has been well-documented in both western samples (e.g., Ryan & Connell, 1989) and eastern samples (e.g., d'Ailly, 2003). Given the Self-Regulation Questionnaire was developed according to a simplex pattern, we did an exploratory factor analysis with the 12 items and constrained the analysis to two factors to determine whether this analysis would confirm the controlled and autonomous scales. The factor analysis was performed using maximum-likelihood extraction method and direct oblimin rotation. This rotation method was used due to hypothesized correlations among the underlying factor structures of the construct. Four factors emerged with eigenvalues larger than 1.00, yet the scree test indicated that two factors best described the data. These two factors accounted for approximately 39.39% of the total variance. 6 controlled motivation items loaded on one factor with factor loadings ranging from .45 to .65, and 4 autonomous motivation items loaded on the other, with factor loadings ranging from .52 to .58. One autonomy item did not load on either factor and another cross-loaded. So we used only 4 autonomous motivation items with the 6 controlled motivation items in the subsequent analyses. The Cronbach alpha for the controlled motivation scale was .65, and the alpha for the autonomous motivation scale with four items was .75.

3.1.2.2. Self-perceived classroom adjustment. The Intrinsic Motivation Inventory contains a set of subscales that assess students' subjective academic adjustments that were developed as correlates of intrinsic motivation in western cultures. There are five subscales to the measure, although in this study we used only three: interest (4 items, including "I enjoyed learning mathematics very much"); perceived competence (4 items, including "I am pretty skilled at mathematics"); and perceived choice (4 items, including the reverse of "I didn't really have a choice about learning mathematics"). Responses were indicated on 5-point Likert-type scales, from "Not at all true" (1) to "Totally true" (5). The subscales were developed factor-analytically, and past studies have shown the alphas for the subscales to be in the .68 to .84 range (e.g., McAuley, Duncan, & Tammen, 1989). In this first study the alphas were: interest ($\alpha = .65$), perceived competence ($\alpha = .61$), and perceived choice ($\alpha = .19$), although as we will see they were somewhat higher in Study 2. Deletion of one perceived choice item increased the reliability of this subscale to .43, so we used 3 items in the subsequent analyses. Intrinsic motivation is

a form of autonomous motivation, and autonomous motivation has been related to these three subjective experiences in western cultures (e.g., Deci, Eghrari, Patrick, & Leone, 1994; Ryan, Connell, & Plant, 1990; Ryan, Koestner, & Deci, 1991).

3.2. Results

Our primary focus in Study 1 was to evaluate the relations of the levels of both autonomous and controlled motivations to the three adjustment variables in the Chinese children. First, Pearson correlation coefficients were calculated (see Table 1). Autonomous motivation was positively related to perceived competence, interest, and perceived choice; autonomous and controlled motivations were found to have a low positive correlation with each other ($r = .20, p < .01$); and controlled motivation was negatively related to perceived choice and unrelated to interest. Further, controlled motivation was positively related to perceived competence ($r = .29, p < .01$), although, as would be expected, this relation was significantly lower ($z = 4.05, p < .001$) than the relation of autonomous motivation to perceived competence ($r = .60, p < .01$).

Concerning background characteristics, grade level and gender were unrelated to any of the classroom adjustment indicators. Analysis of variance (ANOVA) indicated that students tended to report higher levels of autonomous motivation and adjustment in their Math classes than their English classes: autonomous motivation [$F_{(1, 193)} = 12.92, p < .001$], interest [$F_{(1, 179)} = 6.58, p < .05$], and perceived competence [$F_{(1, 181)} = 14.44, p < .001$]. Hence, we controlled for subject when predicting the adjustment variables in subsequent analyses.

Next, we performed a series of multiple regression analyses to explore the independent relations of autonomous motivation and controlled motivation to the three adjustment indicators. An interaction term, constructed by centering both motivation variables (i.e., subtracting the variable's mean from each value and multiplying the centered values), allowed us to explore whether being autonomously motivated as a young Chinese learner might have a different relation to adjustment if the students experienced a high rather than low level of controlled motivation (Vansteenkiste et al., 2005). Thus, each outcome was simultaneously regressed onto three predictors: autonomous motivation, controlled motivation, and the interaction, after controlling for the subject matter. The results can be found in Table 2. Autonomous motivation independently and positively predicted interest, perceived competence, and perceived choice (after controlling for academic subject). A very different pattern of findings emerged for controlled motivation: it independently and negatively predicted interest and perceived choice but was positively related to perceived competence (after controlling for academic subject). No significant relations were found for the interaction between the two types of motivation and any of the outcome variables.

3.3. Brief discussions

In this study, participants' levels of autonomy, and a series of self-perceived classroom adjustment variables were assessed. The present findings provide initial evidence that, as predicted by SDT, autonomy is

Table 1
Intercorrelations between variables in Study 1 (N = 195).

	1	2	3	4	5	6	7
1. Grade	–						
2. Gender	.15*	–					
3. Subject	–.04	.01	–				
4. Autonomous motivation	–.04	–.03	.25**	–			
5. Controlled motivation	–.09	–.14	.12	.20**	–		
6. Interest	.07	.11	.19*	.58**	–.05	–	
7. Competence	.11	–.03	.27**	.60**	.29**	.54**	–
8. Choice	.08	.12	.00	.34**	–.23**	.49**	.19*

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

Table 2
Beta-coefficients of multiple regression analyses with autonomous motivation, controlled motivation, and their interaction as predictors of classroom self-perceptions (N = 195).

	Autonomous motivation	Controlled motivation	Interaction	R ²	F	p
Interest	.60**	–.16*	–.04	.36***	35.54	.000
Perceived competence	.58***	.18**	.06	.39***	41.75	.000
Perceived choice	.38***	–.30***	–.05	.20***	13.59	.000

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

in fact important in the lives of young Chinese learners from rural areas, as higher levels of autonomous motivation were associated with higher levels of perceived competence, interest, and perceived choice about schoolwork. Further, being controlled in their motivation was negatively (rather than positively) related to the interest and choice variables: the more the students felt obligated, obedient, and pressured, the less interested they were in the class and the less they experienced a sense of choice about their learning. Thus, we saw in these data that autonomous motivation was important for classroom adjustment in rural Chinese schools, in much the same way that it has been in western schools. To follow up on this, we did a study in a special summer school program to investigate whether students who perceived their summer teachers as more autonomy supportive than their regular teachers would report increases in autonomous motivation and adjustment from the end of the school year to the end of the summer session.

4. Study 2

Study 1 showed that autonomous motivation for learning has positive independent relations to important classroom-adjustment variables, namely, perceived competence, interest, and perceived choice about schoolwork, among Chinese children, whereas controlled motivation had more negative relations to the adjustment variables. Study 2 was designed to extend these findings by examining the relations of teachers' autonomy support to the classroom adjustment variables. As mentioned, Chinese classroom teachers tend to be quite controlling rather than autonomy supportive, so we chose as a venue for this research an international program in which a small cohort of volunteer Chinese-speaking teachers were trained to teach in an autonomy-supportive or student-centered manner for a summer session. These teachers underwent a 9-day training that included guest lectures on rural China, education in China, and student-centered teaching, as well as small-group preparation of lesson plans and teaching materials, and practice teaching. Student-centered or autonomy-supportive teaching is very different from the typical Chinese teaching, and it is likely that different teachers would have absorbed the message of student-centered teaching to differing degrees, so there would likely be variability in the extent to which the teachers would create autonomy-supportive learning climates. The curriculum consisted of 10 subjects, including Math and English, which were the focus of the research. Lessons were structured so as to encourage independent thinking in the children, promote creative expressions, involve small-group work and hands-on projects, and provide positive feedback regarding competence.

Students who had provided data for Study 1 were invited to participate in the summer program, which parents generally believed would be helpful for their children who need to pass national exams to progress in the educational system. Questionnaires assessed the students' perceptions of their teachers' autonomy support as well as their own autonomous and controlled motivation, and their interest, perceived competence, and perceived choice. The strategy for the study was to examine whether the students in this program who perceived their teachers to be more autonomy supportive would report higher autonomous motivation and adjustment after controlling for

Table 3
Zero-order correlations among primary variables in Study 2 ($N = 48$).

	1	2	3	4	5	6	7	8
1. Autonomous motivation (T1)	–							
2. Controlled motivation (T1)	.07	–						
3. Autonomous motivation (T2)	.11	–.08	–					
4. Controlled motivation (T2)	.46**	.21	–.03	–				
5. Interest (T2)	.06	–.05	.67**	–.21	–			
6. Competence (T2)	.30*	.05	.59**	.25	.40**	–		
7. Choice (T2)	–.08	.01	.55**	–.38**	.63**	.22		
8. Autonomy support (T1)	.43**	.46**	.25	.18	.19	.37**	.11	
9. Autonomy support (T2)	.15	–.14	.51**	.47**	.21	.58**	.02	.22

* $p < .05$; ** $p < .01$; T1 = Time 1; T2 = Time 2.

baseline levels of all variables assessed at Time 1 at the end of the previous school year.

4.1. Method

4.1.1. Participants and procedure

Forty-eight 4th and 5th graders (mean age = 11.13 years, ranging from 9 to 14 years old; 64.6% female) out of the 195 from Study 1 participated in this study by attending the 12-day, student-centered, summer learning program and responding to the questionnaires near the end of the program in either their Math or English classes. Thus, the Time 1 (T1) questionnaires were administered late in the school year in the students' regular classes, and the Time 2 (T2) questionnaires were administered after the students had been in the summer program for nearly two weeks.

4.1.2. Measures

4.1.2.1. Autonomous motivation and classroom adjustment. Scores on autonomous motivation, controlled motivation, interest, perceived choice, and perceived competence were collected using the same set of questionnaires as in Study 1. Cronbach alphas for the subscales at T2 were: autonomous motivation ($\alpha = .87$), controlled motivation ($\alpha = .66$), interest ($\alpha = .71$), perceived choice ($\alpha = .53$), and perceived competence ($\alpha = .77$).

4.1.2.2. Perceptions of autonomy support from teachers. A Chinese translation of the Learning Climate Questionnaire (LCQ) was employed in this study to assess students' perceptions of their teachers' autonomy support. Williams and Deci (1996) adapted this scale from the Health Care Climate Questionnaire (Williams, Grow, Freedman, Ryan, & Deci, 1996), and it was used here for Math and English classes. Because the students were quite young, a short version of the LCQ with 5 items was used in this study. For example, "My English teacher encourages me to ask questions" and "I feel understood by my teacher." Responses were indicated on a 5-point Likert-type scale, from "Strongly Disagree" (1) to "Strongly Agree" (5). Students had completed the questionnaire for their regular classroom teachers at the end of the school year (T1) to serve as a baseline measure and then they completed it again for their Math or English

summer instructors toward the end of the summer program. The alphas for the LCQ were .78 and .87, respectively for the school year and the summer. By regressing T2 scores for the students' summer instructors onto T1 scores for their classroom teachers, we calculated the students' perceived autonomy supportiveness of the summer teachers relative to their standard teachers.

4.2. Results

The objective in Study 2 was to examine whether students would evidence increases in autonomous motivation, interest, perceived competence, and perceived choice if they perceived their summer teachers' autonomy support to be higher than that of their previous classroom teachers. Initially, zero-order correlations were calculated among the primary study variables, which allowed an inspection of the relations of teacher autonomy support to the motivation variables and self-perceptions. The correlations for the students in Study 2 from both T1 and T2 appear in Table 3. Most of the expected relations were significant, and all significant relations were in the expected direction, except for the positive correlation between autonomy-supportive learning climate and controlled motivation. Finally, although not included in the table, none of the demographic variables showed statistically detectable relations to the motivation or adjustment self-perceptions.

The primary analyses were conducted by hierarchical regression in which each of the five variables (autonomous motivation, controlled motivation, perceived competence, interest, and perceived choice) at T2 was regressed onto the corresponding T1 score (to create change scores) and then onto the residual scores of perceived teacher autonomy support at T2 in the Math and English classes, while controlling for T1 autonomy support from their previous Math or English classroom teachers. The hypothesis being tested was that having change in autonomy support from the classroom teacher to the summer teacher would promote changes in the motivation and adjustment variables. As shown in Table 4, controlled motivation at T1 significantly predicted controlled motivation at T2 ($\beta = .43$, $t(37) = 2.78$, $p < .01$); and perceived competence at T1 also predicted perceived competence at T2 ($\beta = .69$, $t(39) = 5.79$, $p < .001$), indicating that controlled motivation as well as the perception of competence were relatively stable over time. The result showed further that change in teacher autonomy support was a significant positive predictor of changes in autonomous motivation ($\beta = .31$, $t(42) = 2.14$; $p < .05$), controlled motivation ($\beta = .54$, $t(37) = 3.50$, $p < .01$), and perceived competence ($\beta = .50$, $t(39) = 4.23$, $p < .001$). It is important to note however that, although autonomy support related to increases in both types of motivation, the results of both studies indicate that autonomous motivation has much more positive associations with important school-related variables than does controlled motivation.

4.3. Brief discussions

The purpose of this study was to examine the relationships between teachers' autonomy support and the classroom adjustment variables. In general, change in autonomy support related to change in autonomous motivation and perceived competence, which is consistent with SDT predictions and with well-replicated results in western cultures (Ryan & Deci, 2000). In addition, although not predicted, there was a significant increase in controlled motivation for students who perceived their teachers as more autonomy supportive.

Table 4
Beta-coefficients of multiple regressions testing the relations of perceived teacher autonomy support to changes from T1 to T2 in motivation and self-perception variables ($N = 48$).

DV (Time 2)	Autonomous motivation	Controlled motivation	Introjected motivation	External motivation	Interest	Perceived competence	Perceived choice
<i>df</i>	(2, 43)	(2, 37)	(2, 39)	(2, 43)	(2, 42)	(2, 39)	(2, 41)
Corresponding Time 1 score	.15	.43**	.36*	.16	.08	.69***	–.14
Autonomy support ^a	.31*	.54**	.44**	.27	.04	.50***	–.05

* $p < .05$; ** $p < .01$; *** $p < .001$; Corresponding Time 1 score = The respective Time 1 scores for each dependent variable entered to create change score.

^a Residual scores for autonomy support, with T1 score removed from T2 score.

This is an interesting finding. As mentioned, Chinese students tend to be oriented toward pleasing their teachers in order to feel accepted by the collective, which is quite consistent with the relatively controlled way in which they are raised and instructed. In the current research, when they encountered teachers who were more autonomy-supportive and responsive than they were accustomed to, they were likely to have felt even more motivation to please these teachers who were being responsive to them. This would be represented by a significant increase in the type of controlled motivation referred to as introjected regulation. Thus, the increased autonomy support may have resulted in more controlled motivation (as well as more autonomous motivation) because it prompted greater introjected regulation – that is, greater willingness to engage in learning in order to get the teachers' approval. To test this interpretation of the unexpected finding, we separated controlled motivation into introjected and external regulation. If our interpretation is correct, change in autonomy support should have been significantly related to change in introjected motivation but not to change in external regulation. In fact, the findings reported in Table 4 support this interpretation. Change in autonomy support from the classroom teachers to the summer teachers predicted change in introjected regulation from T1 to T2 ($\beta = .44$, $t(39) = 2.76$, $p < .01$), but it did not relate significantly to change in external regulation.

5. General discussions

There have been many debates concerning the cross-cultural relevance of autonomy. Some theorists (e.g., Iyengar & DeVoe, 2003; Markus & Kitayama, 1991, 2003) assume that autonomy represents a western, individualistic value, which stands in contrast with the SDT point of view that autonomy is a basic psychological need, the satisfaction of which is essential across cultures. The focus of the current investigation was to assess the relevance of autonomous motivation and perceived autonomy-support in a Chinese context. The results of two studies among Chinese children revealed the following important results. First, experiences of autonomous motivation with respect to studying were conducive to optimal self-perceptions of classroom adjustment, as indexed by interest, perceived competence, and perceived choice, whereas controlled motivation to study was found to have predominately negative relations to self-perceived adjustment. Further, an autonomy-supportive teaching style, which is characterized by the encouragement of self-initiation and the minimal use of guilt- and shame-inducing tactics, predicted children's autonomous motivation and perceived competence with respect to studying. It appears therefore that when rural Chinese children are autonomously motivated and experience support for their autonomy there are positive consequences for their school-related functioning, just as has been found to be true with western samples of comparably aged students (Ryan & Connell, 1989) and with young Chinese adults (Vansteenkiste et al., 2005). In contrast, the children's controlled motivation was not found to be a critical positive predictor of school-related well-being, although it did relate weakly to the students' perceived competence.

There were additional findings that had not been predicted. First, autonomy support increased children's controlled motivation as well as their autonomous motivation, which appears to have been prompted by the children being motivated to please the new teachers who were being very supportive of them. Second, the change in teachers' autonomy support from the regular classrooms to the summer classes was not predictive of changes in the students' experience of choice and their interest in the material. This may be due to the fact that rural Chinese students have almost no choice about what they do in relation to schoolwork and there is a deeply engrained, well-documented tendency towards uniformity in the Chinese schools (e.g., Winner, 1989). Thus, the experience of greater teacher autonomy support during the two-week summer period is likely to have been insufficient to overcome this. Notably, during a field visit to a drawing class in a summer program where the art teachers valued creativity, Winner (1989) observed that

there was still a very high degree of uniformity in the children's drawings with little variation, for example, in the cloud schema or sun motif of the works. It is also the case that the reliability of the perceived choice scale was below the generally acceptable level and this could have been part of the reason for the lack of relation. Similar to the case with perceived choice, the autonomy support perceived by the children may also not have been sufficient to affect their interest in the material. Presumably, to have a larger impact on change in students' experiences of interest and choice, it would take a more concerted exposure to autonomy support.

Considerable evidence has indicated that strivings for uniqueness, individualism, and independence are less highly valued in eastern collectivist societies such as China than in western cultures, and some cross-cultural researchers have used that information to conclude that experiences of autonomy in collectivistic cultures will not be vitalizing (e.g., Markus & Kitayama, 2003) and may even be detrimental (e.g., Oishi, 2000) to people who are pressured to meet external expectations such as social harmony, conformity, and interpersonal relationships. However, this viewpoint confuses the ideas of independence and individualism with that of autonomy. To be autonomous as the term is used in SDT does not mean to be individualistic or independent. In fact, Chirkov et al. (2003) found that being autonomous in the enactment of collectivist values was beneficial to psychological health just as being autonomous in the enactment of individualistic values was beneficial. The point is to be volitional and to fully endorse one's actions, not to be independent and self-centered.

According to SDT, autonomy is a psychological need and its satisfaction is critical for the optimal development of all individuals. Autonomy is not conceptualized as a cognitive preference or an interpersonal value that is more or less emphasized depending on the cultural context. Rather, it reflects fully concurring with one's actions at an inner, intra-individual level. Defined in this way, students' autonomy was found in this study to relate positively to important adjustment-related self-perceptions of rural Chinese children just as it had related to important school outcomes in other studies of eastern collectivist cultures (e.g., Vansteenkiste et al., 2005; Yamauchi & Tanaka, 1998). In the current studies we found that autonomous and controlled motivation tended to have independent and opposite relations to school adjustment variables. For instance, autonomous motivation was associated with a higher level of interest, perceived competence, and choice, whereas controlled motivation was related to reduced interest and a lower level of perceived choice.

As well, autonomy support from teachers tended to enhance students' autonomous motivation. It seems that if Chinese teachers acknowledge their students' feelings, and minimize the use of guilt- and shame-inducing strategies, the students are more likely to study with a sense of volition and have a stronger sense of competence than if they are pressured to meet external pressures or internal obligations. Clearly, these findings failed to support Markus and Kitayama's (2003) argument that eastern students might "flourish when they are forced to meet pressuring internal or external expectations" (p. 4). Instead, they supported SDT's contention that when people are free from pressures to learn, rather than being controlled, they will be more fully engaged in learning and they are likely to more fully understand and be more flexible in utilizing the newly acquired information (Reeve, 2002).

5.1. Limitations and future directions

The current research has some notable limitations. First, the study was only correlational in nature, so, even though the primary analyses in Study 2 did use residual scores to index change in motivation and self-perception over time, it still does not allow causal conclusions. Second, whereas SDT holds that the provision of autonomy-support – that is, the encouragement of volitional functioning (Soenens, Vansteenkiste, & Lens, 2005) – should entail beneficial school outcomes across cultures, it remains to be investigated what specific teaching behaviors would be most effective in promoting autonomy in a Chinese learning situation. Reeve and Jang (2006) examined the

instructional behaviors that were interpreted as autonomy supportive rather than autonomy thwarting in western schools, but future studies will need to determine whether the same behaviors tend to be experienced as supporting autonomy in eastern cultures. Third, as mentioned before, because participants in both samples chose to participate in the program on a voluntary basis, they were likely to be initially highly motivated. For example, our additional analyses of the difference in motivation levels between students who responded to the surveys only at T1 and those who were in the summer program and also responded at T2 indicated that: the former reported a significantly lower level of autonomous motivation ($M = 4.03$) than the latter ($M = 4.35$), $F(1,189) = 4.24$, $p < .05$. There was no significant difference in terms of controlled motivation. However, we expect that the current findings would also hold among children initially low in autonomous self-regulation as well, given that autonomy support has been found to be more positively related to educational outcomes for students initially low in autonomous motivation than for those initially high in autonomous motivation (Black & Deci, 2000). Last, the study took place in a summer program with novel teachers, rather than during the regular school year, so the students were in a whole new environment and may have experienced it as different in more ways than just the degree of autonomy support.

5.2. Conclusions

The current studies were the first that we know of to examine the importance of autonomy in the school experiences of rural Chinese children. In that setting where teaching is typically highly controlling, the current results indicated that autonomy support from teachers was positively related to enhanced autonomous motivation. Further, autonomous motivation was found to relate positively to the adjustment-related, school self-perceptions of competence, interest, and choice. This, therefore, suggests that autonomy does play an important role in the learning behaviors and experiences of children in eastern collectivist cultures as well as western individualist cultures, and that controlling socializing practices are likely to have negative consequences for eastern as well as western students.

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