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**EXPERIENCES OF AUTONOMY AND CONTROL AMONG CHINESE LEARNERS:
VITALIZING OR IMMOBILIZING?**

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Abstract

Two studies examined the cross-cultural relevance of autonomous study motivation and parental autonomy support for learning and adjustment outcomes in Chinese students. Various cross-cultural researchers state that autonomy is not valued in Eastern cultures and, hence, is unlikely to predict optimal study functioning and well-being. In contrast, Self-determination Theory (SDT; Ryan & Deci, 2000a) maintains that autonomous or volitional study motivation is universally important and should predict better learning and higher well-being, even among Chinese students. The goal of the present study was to contribute to this controversy. Findings indicated that autonomous study motivation positively predicts adaptive learning attitudes, academic success, and personal well-being, whereas controlled motivation predicts drop-out, and is associated with maladaptive learning attitudes and ill-being. In addition, Study 2 revealed that parental autonomy support (versus psychological control) is related to more adaptive learning strategies and higher well-being, and that these effects were mediated by students' relative autonomy for studying. The importance of defining autonomy as an intra-individual, phenomenological experience vs. an inter-personal, culturally-bounded value is discussed.

Experiences of Autonomy and Control among Chinese Learners:

Vitalizing or Immobilizing?

Motivation research has played a prominent role in the domain of educational psychology over the past decade (Pintrich, 2000). A variety of motivation theories have proven useful in predicting and understanding motivational dynamics among western students. However, during the process of generalization, some of these theories were subjected to strong criticisms by cross-cultural psychologists (e.g., Brickman & Miller, 2001; Iyengar & Lepper, 1999; Markus & Kitayama, 2003), claiming that the developed theories are limited to western societies, and that the obtained findings might not hold in non-western cultures.

One of these criticized theories was self-determination theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2000a), which forms the conceptual basis for the present research. A crucial concept within SDT concerns the extent to which learners' studying is autonomously motivated. According to SDT, autonomous actions are those that are regulated and endorsed by the self (Deci & Ryan, 1985), and are therefore accompanied by a sense of psychological freedom and volition (Butzel & Ryan, 1997). The theory holds that the experience of autonomy and social environments that promote autonomy (e.g., parents) are crucial for optimal learning and achievement, even for non-western individuals (Chirkov & Ryan, 2001). However, various cross-cultural researchers (Heine, 2003; Iyengar & DeVoe, 2003; Oishi, 2000) have argued that the experience of autonomy is not valued as strongly by Eastern learners, and that such experiences are less encouraged by their instructors and parents (Rothbaum, Weisz, Pott, Miyake, & Morelli, 2000; Tseng, 2004). Therefore, the concept of autonomy would be less applicable in Eastern cultures. These criticisms gave rise to a controversy that challenges the universality of SDT (Chirkov, Ryan, Kim, & Kaplan, 2003), and the goal of the present research is to shed further light on this controversy. We first outline SDT's conceptualization of autonomy, and then discuss in more detail the criticisms it is faced with.

Self-Determination Theory

SDT maintains that people have the natural inclination to engage in activities that are experienced as self-chosen or volitional (deCharms, 1968; Deci & Ryan, 1985; Ryan & Deci, 2000a). Deci (1975) suggests that intrinsically motivated behavior is the prototype of self-determined or autonomous activity, because people's interests are fully involved in a self-catalyzing chain of activities. When intrinsically motivated, people engage in an activity for its own sake rather than to obtain an outcome that is separable from the activity itself, as in the case of extrinsic motivation. Although extrinsically motivated behaviors are carried out to achieve an instrumental end (Ryan & Deci, 2000b), according to SDT, they can still differ in

their degree of relative autonomy or self-determination, depending on the extent to which initially externally regulated reasons for acting have been gradually 'taken in' or internalized (Ryan & Connell, 1989; Schaefer, 1968). Because this internalization process can be more or less successful, three different types of extrinsic motivation are differentiated.

In the case of *external regulation*, people's behavior is regulated by pressuring contingencies that are overtly external to the individual, such as the promise of a reward or the threat of a punishment. In this case, the behavioral regulation has not been internalized at all. *Introjected regulation* describes behaviors that are motivated by internal prods and pressures such as self-esteem-relevant contingencies, and feelings of guilt and shame. Although the behavioral regulation resides within the person in the sense that it no longer requires overtly external contingencies, it is also characterized by a pressured demand of oneself, and the behavioral regulation has only been partially internalized. Finally, *identified regulation*, as a third type of extrinsic motivation, is considered an internalized type of extrinsic motivation, which occurs when the value of the behavior is recognized as personally valuable (Deci, Eghrari, Patrick, & Leone, 1994; Rigby, Deci, Patrick & Ryan, 1992). When people manage to concur with or endorse the personal relevance of the behavior, they are more likely to engage in the activity with a sense of willingness and volition. For this reason, identified regulation is in empirical research often combined with intrinsic motivation to form an *autonomous motivation* composite (e.g., Vansteenkiste, Lens, Dewitte, De Witte, & Deci, 2004a). Autonomous motivation is then contrasted with *controlled motivation*, which contains both external and introjected regulation. In short, SDT differentiates between autonomously motivated behaviors that are enacted with a sense of volition and psychological freedom and controlled behaviors that are typically executed with a sense of resistance, pressure and/or obligation.

A variety of both correlational and experimental research (see Reeve, 2002 for an overview) has documented that the advantages of autonomous compared to controlled motivation for studying among Western populations are manifold, including higher well-being (Levesque, Zuehlke, Stanek, & Ryan, 2004), deep level learning (Grolnick & Ryan, 1987), higher grades (Black & Deci, 2000), and lower drop-out rates (Hadre & Reeve, 2003; Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002; Vallerand & Bissonnette, 1992; Vallerand, Fortier, & Guay, 1997; see Reeve, Deci, & Ryan, 2004 for a recent overview).

In addition, SDT claims that parents, among other socialization figures, can contribute to their children's autonomous motivation. More specifically, parents are thought to promote volitional functioning in their children by being attuned to and empathic towards the child's needs, by encouraging the child to act upon his or her personally valued interests, and by

minimizing the use of controlling parenting techniques (Grolnick, Ryan, & Deci, 1997). Conversely, parents will induce a controlled regulation when they use overtly controlling strategies (e.g., rewards, deadlines, punishments; see Deci, Koestner, & Ryan, 1999), or more subtle and implicit pressures (e.g., guilt-induction, shaming, love withdrawal; Barber, 2002; Vansteenkiste, Simons, Lens, Soenens, & Matos, 2004c) that are aimed to push adolescents to think, act, or feel in particular ways. Past research in Western samples has clearly demonstrated the beneficial well-being and learning effects of parental autonomy-support, including higher well-being, higher school achievement and less externalizing problems (e.g., Grolnick, Kurowski, Dunlap, & Hevey, 2000; Grolnick, Ryan, & Deci, 1991; for an overview see Grolnick, 2003). Conversely, consistent evidence has documented the negative developmental outcomes of controlling parenting (Barber & Harmon, 2002). Moreover, a number of studies have shown that autonomous or volitional functioning mediates the relationship between parental autonomy-support vs. psychological control and adjustment (e.g., Grolnick, Ryan, & Deci, 1991; Soenens & Vansteenkiste, 2003).

Autonomy: Patented for the West?

However, a considerable number of researchers (e.g., Ford, 1992; Iyengar & DeVoe, 2003; Markus & Kitayama, 1991; 2003) criticized these findings. They argued that the experience of autonomy corresponds less with Eastern cultures that embrace collectivistic (instead of individualistic) values (Triandis, 1995) and is not relevant for individuals who hold an interdependent (instead of an independent) view of the self (Markus & Kitayama, 1991). Because autonomy, self-direction and personal freedom are less salient concerns for people in Eastern societies (Schwartz, 1994), the assumptions of SDT are less likely to hold in such cultures.

Similarly, it has been argued that parents in Eastern societies are less focused on promoting autonomy (Olsen et al., 2002; Quoss & Zhao, 1995). With regard to the Chinese cultural context in particular, the support of autonomy appears to be a less common socialization practice because of the prevailing Confucian values. In contrast, high emphasis is placed upon conformity and family interdependence (Chao & Tseng, 2002); the maintenance of social harmony and family support are often seen as lifelong obligations (Tseng, 2004). If the promotion of autonomy is a less culturally congruent experience in Eastern cultures, it might not have the same effects as found in Western samples.

These criticisms are based upon a specific definition of autonomy, which is also rooted in a particular model of agency. In their recent contribution to the *Nebraska Symposium of Motivation*, Markus and Kitayama (2003) distinguish between disjoint and conjoint models of

agency, which build on their earlier differentiation between independent and interdependent self-concepts (Markus & Kitayama, 1991). In disjoint models, agency is constructed as an independent essence that is bounded within the individual and disconnected from others. In contrast, in conjoint models, agency is constructed by meeting social obligations and engaging in social requirements. As a consequence, the self is also differently expressed in these divergent models, and, hence, parents should stimulate the expression of a different type of self. In a disjoint model, the self is affirmed through pursuing independence, and personal achievement, and is expressed through one's unique attributes, while in a conjoint model, the self is understood as the presence of interdependent selves "in-relation-to-others", and is affirmed through maintaining harmonious relationships with in-group members, and meeting social norms.

Within this view of autonomy as independence (see also Gough & Heilbrun, 1983; Jackson, 1974; and Murray, 1938 for a similar perspective), the pursuit of independence is seen as antagonistic to the tendency to conform to existing norms, rules and external influences. As pointed out by Witkin and Berry (1975), the "continuous reinforced orientation toward external referents makes difficult achievement of a self differentiated from others" in "socially conformist societies" (p. 46). Consistent with these claims, a variety of studies (Chu, 1979; Cialdini, Wosinka, Barrett, Bunter, & Gornik-Durose's; 1999; Feldman & Rosenthal, 1990, 1991; Kim & Markus, 1999) have shown that individuals residing in societies that hold a conjoint model of agency, are more likely to act in conformistic fashion (i.e., by following external influences; Bond & Smith, 1996), and are less likely to act upon their individual and unique preferences (Kitayama, Snibbe, Markus, & Suzuki, 2004) compared to individuals coming from societies with a disjoint model of agency. Based on these observations and a relativistic perspective on cultures, it has been argued that the concept of autonomy would not be useful to understand and predict Eastern students' learning and thriving (e.g., Cross & Gore, 2003; Iyengar & Lepper, 1999; Oishi, 2000).

Differentiating Autonomy and Control from Independence and Conformity

In contrast to these relativistic cross-cultural perspectives, SDT (Deci & Ryan, 2000; Ryan & Deci, 2000a) maintains that experiences of autonomy are universally important and beneficial. To clarify this claim, it is important to distinguish at both a conceptual and operational level the concept of autonomy, as used within SDT, from the cross-cultural concepts of independence and conformity (Butzel & Ryan, 1997; Hmel & Pincus, 2002; Ryan & Lynch, 1989).

Whereas independence refers to the *interpersonal* issue of not relying on others, autonomy, as defined within SDT, reflects the *intrapersonal* and phenomenological experience of volition and choicefulness. The opposite of autonomy is not dependence, that is, relying on others for support or guidance, but “heteronomy”, that is, the experience of feeling controlled and manipulated (Butzel & Ryan, 1997; Ryan & Lynch, 1989). As a consequence, the constructs of autonomy and independence are largely orthogonal (Chirkov, et al., 2003; Ryan, 1993). One can willingly accept guidance or support from without, but one can also feel coerced to submit to the advice or the instruction. To put it differently, autonomy does not necessarily imply the denial of reliance on others and does not require the separation from relations (Ryan & Deci, 2003), as (implicitly) suggested by some cross-cultural perspectives (e.g., Iyengar & DeVoe, 2003; Markus & Kitayama, 2003). In contrast, feelings of autonomy and relatedness are well compatible according to SDT (Butzel & Ryan, 1997; Koestner & Losier, 1996).

In a similar vein, the constructs of conformity and autonomy can be seen as largely orthogonal (e.g., Dworkin, 1988). Indeed, the behavior of conforming can be experienced autonomously or heteronomously. According to SDT (Ryan, 1993), a person's adherence to external influences may reflect mere obedience or coercion or it might represent a reflective valuing of the direction or guidance that these inputs provide. SDT fully agrees with cross-cultural researchers' contention that people with an interdependent sense of self are more likely to consider and anticipate the point of views of others in their behaviors, which is likely to be “a consequence of the fulfillment of the reciprocal obligations or expectations” (Markus & Kitayama, 2003; p. 10). However, according to SDT, acting in accordance with such social norms is not a hallmark of “authentic” or preferred behavior by itself (Markus & Kitayama, 2003). In contrast, it is the degree of subjective endorsement and ownership of these norms that determines whether the adherence to social obligations constitutes an indication of authenticity and self-determination versus alienation and coercion. As a consequence, in the process of conforming to societal norms and expectations, one does not necessarily feel controlled in one's actions (and hence experience low levels of self-determination). Instead, when societal norms and expectations are fully endorsed by the individual, conforming to these norms is likely to be experienced as volitional and self-determined.

In support of SDT's view of autonomy as self-determination, Chirkov, et al (2003) demonstrated that autonomous or volitional enactment of cultural practices was equally important in predicting well-being in culturally very diverse samples (e.g., Turkey, South Korea, America, Russia). Other studies among non-western samples (Deci, Ryan, Gagné, Leone,

Usunov, & Kornazheva, 2001; Downie, Koestner, ElGeledi, & Cree, 2004; Sheldon, Elliot, Kim, & Kasser, 2001; Sheldon, Elliot, Ryan, Chirkov, Kim, Wu, Demir, & Sun, 2004) similarly showed the beneficial impact of autonomous motivation on well-being and adjustment outcomes. Furthermore, a few studies have found autonomous motivation to be predictive of learning and achievement among non-western samples. For instance, Tanaka and Yamauchi (2000, see also Hayamizu, 1997; Yamauchi & Tanaka, 1998) reported that autonomous motivation positively predicted mastery orientation, deep level processing, and academic achievement, while external motivation predicted a work-avoidance orientation and was negatively related to academic achievement in a sample of Japanese undergraduate students.

In contrast to these results, d'Ailly (2003) recently reported that external study motivation, but not identified or intrinsic study motivation positively predicted achievement in a Taiwanese student sample. However, we believe that d'Ailly's study suffers from a methodological inadequacy that we aimed to overcome in the present study. Specifically, zero-order correlations between academic performance and an identified or intrinsic motivation were positive, whereas external and introjected motivation were unrelated to it. Unfortunately, rather than constructing an autonomous and controlled motivation composite to further explore these effects through regression analyses, d'Ailly (2003) entered all four self-regulatory styles simultaneously in the regression. Because the two controlled and the two autonomous motivation subscales were highly correlated, suppression effects are likely to occur (Taq, 1997), resulting in unreliable and inconclusive results. Hence, more research is needed on this topic. The present study sought to explore the implications of controlled and autonomous motivation for Chinese students' learning attitudes, academic achievement, and drop-out, an outcome that has not been investigated yet in non-western samples from an SDT-perspective.

Present Research

In line with various cross-cultural psychologists' viewpoint, SDT recognizes that there exist considerable differences in the type of values and living patterns across cultures, and in the way that individuals' autonomous and choiceful functioning is met in each culture (Ryan & Deci, 2003). However, whereas various cross-cultural psychologists hold that experiences of autonomy are unbeneficial (e.g., Markus, Kitayama, & Heinman, 1996) or even immobilizing (e.g., Oishi, 2000) for non-western individuals, SDT maintains that experiences of volition and choicefulness with respect to studying should entail more optimal learning regardless of the culture (Ryan & Deci, 2004). Similarly, SDT holds that being coerced by externally or internally pressuring prods and demands into learning behavior is unlikely to be beneficial. This view conflicts with Markus and Kitayama's (2003) observation and claim that Asian and West Indian

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).

These contradictory hypotheses were tested in two cross-sectional studies. Using SDT's self-regulation for learning questionnaire (Ryan & Connell, 1989) that had been successfully used in previous research among Asians (Tanaka & Yamauchi, 2000), we examined whether autonomous vs. controlled motivation for learning would differentially predict learning strategies, self-reported learning behavior, drop-out and academic success among Chinese students. An additional goal of Study 2 was to examine the parental antecedents (i.e., autonomy-supportive vs. psychologically controlling parenting) of these two types of motivation, and to investigate their implications for Chinese students' well-being and maladjustment.

Study 1

The goal of Study 1 was to examine the relationships between autonomous and controlled motivation for studying and a variety of learning outcomes, that is, (a) students' ability to remain concentrated when studying (concentration), (b) their efficient use of study time (time management), (c) their general positive outlook towards studying (attitude), (d) the extent to which they are stressed before exams and worry about exam results (performance anxiety), (e) their voluntary and active engagement in extra study-activities (e.g., responding to questions in class), and (f) their engagement in maladaptive and avoidant study behaviors (e.g., missing classes). In addition to these self-reported outcomes, we also explored the relation with academic performance and drop-out. Based on SDT's conception of autonomy, we predicted that experiences of autonomy with respect to studying would predict adaptive learning and academic achievement, whereas feeling controlled would be associated with impaired learning, lower achievement and higher drop-out. In contrast, Oishi (2000), Markus and Kitayama (2003) and Iyengar and DeVoe (2003) had predicted that autonomy would not be beneficial for Chinese students' learning, whereas experiences of control and pressure would be associated with improved learning.

Method

Participants and Procedure

One hundred and fifty-three Chinese participants coming from Shenyang, Northeastern China, took part in the study. Ninety-three participants (62%) were female, and fifty-seven (38%) were male; three participants failed to provide their gender. All participants were engaged in a special English training program at the time of assessment. Within the school, five class groups out of 11 classes were randomly selected with an average size of 30

students. Participation was voluntary, but all the students in those classes chose to participate. The students ranged in age from 18 to 39, with a mean age of 23.8 years.

When students had provided written consent to participate in the study, they were administered a battery of questionnaires which they filled out either at the beginning or at the end of a regular class during 20 minutes. The questionnaire included demographic questions and measures tapping students' study strategies, their motivation for studying, and class behaviors. Because participants were only admitted to take part in the English study program if they had already reached an intermediate level of English, an English version of the scales could be used. On average, participants reported to have studied English for about nine years. None of the participants had difficulties in filling out the English measures. Unfortunately, missing data on some of the self-reported questionnaires led to an exclusion of 21 participants, making final $N = 132$ for most of the analyses. Exam scores and information on drop-out were collected three months later in follow-up. Out of 153 participants, 107 reported their exam scores (70%), 15 had postponed their exam (10%), 5 had withdrawn from the course (3%) and 26 did not provide any information on their current status or exam scores (17%).

Measures

Present and Expected Level of English. Participants rated on a 5-point Likert scale ranging from 1 (*Extremely Low*) to 5 (*Extremely High*) their current level of English and their expected level of English at the end of the course. Four different skills were rated, that is, reading, writing, listening, and speaking. Because these four ratings formed an internally consistent measure of present ($\alpha = .82$) and expected ($\alpha = .91$) level of English, they were summed and averaged.

Self-Regulation Questionnaire-Academics A slightly different version of the Academic Self-Regulation Questionnaire (SRQ-A) developed by Ryan and Connell (1989) was used in the present study. Rather than asking for students' reasons to engage in a variety of different classroom behaviors, participants were only provided with one introductory statement: "Why are you studying English?". 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). The measure consists of four subscales, tapping four different types of motivation for studying English, that is, external regulation (i.e., motivated by pressuring external contingencies such as rewards, expectations, and punishments; e.g., "because I feel forced by others to do so"; 4 items); introjected regulation (i.e., motivated by internal compulsions and obligations; e.g., "because I would feel bad about myself if I don't"; 5 items); identified regulation (i.e., motivated by personal commitments; e.g., "because learning English is something I personally value"; 4

items) and intrinsic motivation (i.e., motivated by inherent task pleasure and satisfaction, e.g., "because I enjoy the English classes"; 3 items). Participants were asked to indicate their agreement with the items on a 5-point Likert scale ranging from 1 (*Totally Disagree*) to 5 (*Totally Agree*). In accordance with SDT and previous studies (e.g., Vansteenkiste, et al. 2004a), we created an autonomous motivation composite by averaging the scores for identified and intrinsic regulation [$r(143) = .62, p < .001; \alpha = .85$], and a controlled motivation composite by averaging the scores for external and introjected regulation [$r(143) = .30, p < .01; \alpha = .60$].

Learning Thoughts and Strategies. Students' thought processes and study strategies were assessed with the Learning and Study Strategies Inventory (LASSI; Weinstein, Palmer, & Schulte, 1987). Ten categories of study strategies or methods were originally involved in this scale. Only four of them were administered in this study, that is, attitude (i.e., students' general attitudes toward and interest in the English course; e.g., "In my opinion, what is taught in my courses is not worth learning"; 8 items; $\alpha = .67$), time management (i.e., the degree to which students create and use schedules to organize and control work progress; e.g., "When I decide to do schoolwork, I set aside a specific length of time and keep it; 8 items ; $\alpha = .52$), concentration (i.e., students' ability to concentrate and direct their attention to academic tasks; e.g., "I am easily distracted from my studies"; 8 items; $\alpha = .74$) and performance anxiety (i.e., the extent to which students worry about the study and their performance; e.g., "I get easily discouraged because of low grades"; 8 items; $\alpha = .60$). All items were scored on 5-point Likert scales ranging from 1 (*Not at all typical for me*) to 5 (*Very much typical of me*). Finally, we also created a composite learning scale by averaging the scores for the four separate learning scales after having reversed the performance anxiety items.

School Behaviors. As a complement to the LASSI questionnaire which mainly measures academic attitudes and perceptions, we constructed six items that aimed to assess active and voluntary engagement in school behaviors ('Do you volunteer answers in class?'; 'Do you engage in learning activities beyond course requirement?'; 'Do you study English in your spare time, without being asked by others?'; $\alpha = .60$) and passive, avoidant and procrastinating behaviors ('Have you ever missed any class until now?'; 'Do you finish assignments within the last minute before next class?'; 'Do you find any excuse for not attending the class?'; $\alpha = .60$). Participants indicated on a 5-point Likert scale ranging from 1 (*Never*) to 5 (*Always*) how often they engaged in each of these behaviors.

Academic Performance. Academic performance was measured by students' self-reported performance on the International English Language Testing System (IELTS)

(<http://www.ielts.org>). Candidates could voluntarily take the test at any time and any place according to individual preferences and receive a score for each module of the test (listening comprehension; reading comprehension; writing; and oral exam). These scores were averaged to form an overall achievement score. Self-reported exam scores have been found to be reliable estimations of students' effective exam results (Herman, Dornbusch, Herron, & Herting, 1997).

Drop-out. All participants were contacted again three months after their initial participation in the study, and it was noted which students had withdrawn from the course (=1) and which students had persisted in the course (=0).

Results and Brief Discussion

Plan of Analyses

Our hypotheses were tested in two different ways. First, we examined whether overall feelings of relative autonomy with respect to studying predicts learning, performance and drop-out among Chinese students. Such an index of relative autonomy (RAI) was constructed by assigning a weight to each of the motivation subscales depending on their placement on the self-determination continuum (external regulation -2; introjection -1; identification +1; intrinsic motivation; +2), and then, summing these weighted scores. This strategy has been used on many other occasions (e.g., Vallerand et al., 1997). Second, because the RAI obscures any possible independent effects of the two primary types of motivation within SDT, that is, autonomous motivation and controlled motivation, we also examined through a series of multiple regression analyses whether autonomous motivation (i.e., identified and intrinsic) is an adaptive form of motivation and controlled motivation (i.e., external and introjected) a maladaptive type of motivation among Chinese learners, as predicted by SDT.

Preliminary Analyses

To begin our analyses, Pearson correlation coefficients were calculated. The results can be found in Table 1. The RAI was positively correlated with expected level of English, the composite learning scale, attitude, concentration, time management, active class behavior, and academic achievement, while it was negatively correlated with performance anxiety and passive/avoidant class behavior. The RAI tended to be negatively correlated with dropping out from the course, although the effect was not significant. Autonomous motivation was positively correlated with the learning composite scale, attitude, active/voluntary behavior and exam performance, and tended to be positively related to expected level of English, concentration and time management, but was unrelated to performance anxiety and dropping out from the course. In contrast, controlled motivation was negatively correlated with the learning composite

scale, attitude, concentration and time management, while it was positively associated with passive behavior and dropping out from the course. Yet it has a nearly zero-correlation with present and expected level of English and academic success. Autonomous and controlled motivation were moderately correlated with each other. Present level of English was negatively correlated with performance anxiety, while it positively correlated with active/voluntary school behavior and performance. Expected level of English was marginally positively correlated with performance.

Concerning background characteristics, years of English was unrelated to any of the outcomes except for exam performance. Hence, we controlled for this variable in predicting exam scores on the basis of motivational variables. Finally, an independent sample t-test indicated that male participants had lower scores on the relative autonomy index [$t(130) = 3.29$, $p < .001$], scored lower on autonomous motivation [$t(130) = 2.61$, $p < .01$], and learning attitude [$t(130) = 1.96$, $p = .05$], whereas they had higher performance anxiety scores [$t(130) = 3.29$, $p < .001$] and were more likely to drop-out from the course [$t(125) = 3.29$, $p < .001$] compared to female participants. Hence, we controlled for gender when predicting these outcomes on the basis of motivational variables in all subsequent analyses.

Primary Analyses

We performed a series of multiple regression analyses to explore the independent effect of autonomous and controlled study motivation on learning outcomes and academic success. An interaction term was constructed by centering both motivation variables and multiplying the centered means; this allowed us to explore whether being autonomously motivated as a Chinese learner might have a different effect if one experiences additional pressure and control to study or not. Each outcome was then regressed upon three predictors: autonomous motivation, controlled motivation, and the interaction. The results can be found in Table 2. Autonomous motivation positively predicted attitude (after controlling for gender), concentration, time management, and active study behavior, whereas it was negatively related to performance anxiety (after controlling for gender). It was unrelated with passive/avoidant school behavior and dropping out from the course. An almost opposite pattern of findings emerged for controlled motivation: it negatively predicted attitude, concentration, and time management, whereas it was positively related to performance anxiety, passive/avoidant school behavior, and dropping out from the course, yet unrelated to active/voluntary study

behavior and academic success. None of the interaction effects was significant. The amount of explained variance in outcomes varied between .06 and .21 (all $ps < .05$).

Ancillary Analyses

Two ancillary analyses were performed. First, we examined whether the positive effect of relative autonomy and autonomous motivation on academic achievement remained significant after controlling for the number of years of studying English and students' self-reported present level of English, which were positively correlated with exam performance. The positive effect of relative autonomy remained significant ($\beta = .21, p < .05$), whereas the effect of autonomous motivation on exam performance became marginally significant ($\beta = .19, p = .08$) after controlling for years of studying English ($\beta s = .28$ and $.28, ps < .01$) and present level of English ($\beta s = .21$ and $.21, ps < .05$).

Second, we examined whether the positive effect of relative autonomy and autonomous motivation on academic performance would be mediated by a positive learning attitude, as assessed with the learning composite scale. Similarly, we explored whether the positive effect of controlled motivation on drop-out was mediated by the learning composite scale. The first criterium for mediation (Kenny, Kashy, & Bolger, 1998) were met because the independent variables (relative autonomy, autonomous motivation, controlled motivation) significantly predicted the outcomes academic performance and drop-out (1st requirement). The second criterium for mediation was also met because both relative autonomy ($\beta = .48, p < .01$) and autonomous motivation ($\beta = .21, p < .05$) positively predicted the mediating variable (learning composite), whereas controlled motivation was negatively related to it ($\beta = -.42, p < .01$) (2nd requirement). Next, the significant direct effect of relative autonomy on academic performance became non-significant after entering the learning composite in the equation (drop in β from .26 to .16, ns ; 3rd requirement), whereas the learning composite simultaneously significantly predicted performance ($\beta = .25, p < .05$; 4th requirement). Similarly, the direct effect of autonomous motivation on academic performance disappeared after entering the learning composite in the equation (drop in β from .26 to .19, ns), whereas the learning composite significantly predicted performance ($\beta = .27, p < .05$). Finally, the direct effect of controlled motivation on drop-out also became non-significant (drop in β from .24 to .16, ns) after entering the learning composite in the equation, whereas the latter variable was marginally negatively related to drop-out ($\beta = -.18, p = .08$).

Brief Discussion

This first study provided initial evidence for SDT. First, overall feelings of relative autonomy with respect to studying positively predicted a variety of adaptive learning strategies, and was positively correlated with academic success, even after controlling for the number of years that students had been studying English and their self-reported level of English.

Second, when this omnibus measure of autonomy was broken down into its two primary subcomponents, that is, autonomous and controlled motivation, multiple regression analyses indicated that both composite scales of motivation had a unique and differential effect upon most learning outcomes among this group of Chinese students. Specifically, autonomous motivation positively predicted being concentrated when studying, effective organization of one's study time, and a positive attitude towards studying, while it was negatively related to performance anxiety. Conversely, Chinese students who studied the English course because of external or internal obligations held a more negative attitude, were less concentrated when studying, exhibited more signs of performance anxiety and were less effective in managing their study time. Concerning students' self-reported and actual behaviors, it was found that autonomous motivation especially predicted positive outcomes, such as active/voluntary school behaviors and academic success, whereas controlled motivation predicted negative outcomes, such as passive/avoidant school behaviors and dropping out from the course.

Study 2

The goal of Study 2 was to replicate and extend the findings of Study 1 in two ways. First, we not only examined whether autonomous vs. controlled motivation for learning differentially predicted learning outcomes, but also explored their relationship with well-being. Previous studies within the SDT-tradition among Western samples confirmed that relative autonomy for studying, either measured through the RAI or through the construct of autonomous motivation, positively predicts well-being (Levesque, et al., 2004) and vitality (e.g., Nix, Ryan, Manly, & Deci, 1999), whereas controlled motivation to study is associated with symptoms of maladjustment, such as anxiety (Black & Deci, 2000) and negative affect (Assor, Kaplan, Kanat-Maymon, & Roth, in press). However, to our knowledge, such relationships have not been systematically examined among non-western samples. In one study by Chirkov and Ryan (2001) among Russian and American students, it was found that autonomous study motivation was equally important in predicting well-being in both student samples. In this study, three indices of well-being (i.e., life satisfaction, vitality and positive affect) and three indicators of maladjustment (i.e., depression, physical complaints and negative affect) were assessed.

Second, because autonomous and controlled motivation have important implications for learning among Chinese students, it becomes important to explore their antecedents. In this study, we focused on parents' levels of autonomy-support versus psychological control (Barber, 1996, 2002; Grolnick, Ryan, & Deci, 1997) ¹. As noted above, within SDT, parental autonomy-support vs. psychological control is defined as the encouragement of self-initiation and the promotion of volitional functioning (Soenens, Vansteenkiste, & Lens, 2004), which is most likely to occur through the provision of choice, the adoption of an empathic perspective and the minimization of intrusively controlling techniques such as guilt-induction and love withdrawal.

Such a view on autonomy-support yields two important implications. First, it does not necessarily imply the promotion of an independent, self-reliant and unique self (Soenens et al. 2004), as suggested by some developmental (Silk et al., 2003; Steinberg et al., 1991) and cross-cultural researchers (Mullen & Yi, 1995). According to these authors, autonomy-supportive parents find it important that their adolescents no longer rely on them for advice and support, but are able to stand on their own feet, act independently of their parents, and attain individuality. Such a socialization strategy would be typical for parents in Western societies (Rothbaum, Weisz, Pott, Miyake, & Morelli, 2000). However, just as self-determination and independence are relatively orthogonal conceptualizations of autonomy, parental autonomy-support as conceptualized within SDT and parental promotion of independence are distinct constructs. For instance, some parents may encourage their children to act volitionally while still allowing their children to depend on their advice. In this case, parents can be said to be promoting volitional functioning, but not to promote independence. Conversely, some parents may encourage their children to engage in independent decision-making by means of guilt-induction and conditional approval. Although the latter parents promote independence, they are also psychologically controlling and little autonomy-supportive².

Second, SDT's concept of autonomy support does not preclude the development of close and supportive relationships with others; it does not require adolescents to relinquish their parental bonds, as suggested by some psycho-analytical thinkers (e.g., Blos, 1979). According to SDT, the promotion of autonomy is not antithetical to the promotion of interdependence, but is even more likely to be associated with the development of harmonious adolescent-parent relationships (Grolnick, 2003; Ryan & Lynch, 1989), a socialization practice which is more commonly used in Eastern families (Rothbaum, Pott, Azuma, Miyake, & Weisz, 2000).

Several studies have shown that parental autonomy support is positively associated with various adaptive outcomes in Western children, including more autonomous study

motivation, academic competence, school achievement and ego development (Allen, Hauser, Bell, & O'Connor, 1994; Boggiano et al., 1993; Grolnick et al., 1991; Kurdek, Fine, & Sinclair, 1995; Soenens & Vansteenkiste, 2003), whereas it negatively predicts maladjustment, as indexed by distress in emotion-regulation and acting-out and learning problems (Grolnick, Kurowski, Dunlap, & Hevey, 2000; Grolnick, Kurowski, McMenamy, Rivkin, & Bridges, 1998). Conversely, psychological control has been linked to a variety of maladjustment outcomes, including depression (Barber, Olson, & Shagle, 1994; Garber, Robinson, & Valentiner, 1997; Gray & Steinberg, 1999), lower self-esteem (Soenens, Vansteenkiste, Luyten, & Goossens, in press), and externalizing problems (Barber, 1996; Barber & Olsen, 1997; Eccles, Early, Frasier, Belansky, & McCarthy, 1997). Most recently, psychological control was found to negatively predict academic performance and to undermine task-oriented learning as well (Aunola, & Nurmi, in press; Vansteenkiste, et al., 2004c)

As indicated before, some developmental and cross-cultural psychologists claim that autonomy-support represents a typical Western parenting style, which is less frequently used by Eastern parents who rather promote interdependence. Conversely, there have been several claims that various components of psychological control, such as power assertion (Wu, 1985), love withdrawal (Ho, 1986), shaming procedures and threats of abandonment (Wu et al., 2002) are more frequently used in Eastern societies, and better accepted as a means of regulating Chinese adolescents' behavior (Chao, 1994; Ekblad, 1986; Olson, et al., 2002). As a consequence, the application of these parenting practices should not yield similar negative consequences as found in studies among Western samples (Chao & Tseng, 2002; Deater-Deckard & Dodge, 1997). Hence, the question concerning the generalizability of relations between parental autonomy support (versus psychological control) and learning and well-being outcomes becomes prominent.

There exists some recent research around these issues, but more research is clearly warranted. For instance, Chirkov and Ryan (2001) found that parental autonomy support was equally important to well-being and self-determined study motivation among Russian and American students, and Stewart, Bond, Ho, Zaman, Dar and Anwar (2000) reported that autonomy-support was positively correlated with perceived health among Pakistani boys and girls. Finally, d'Ailly (2003) reported that maternal autonomy-support (but not paternal autonomy-support) positively predicted relative autonomy with respect to studying, but both parental antecedents were unrelated to academic performance in a Taiwanese sample.

Conversely, Olsen et al. (2002) found that maternal psychological control was associated with externalizing behaviors for Chinese boys and internalizing behavior for Chinese girls.

The present study aimed to further explore these issues (a) by relating parental autonomy support (vs. psychological control) to a broader range of learning and adjustment outcomes, and (b) by examining whether any positive effect of parental autonomy-support on these outcomes is mediated by Chinese students' level of self-determination. Although this mediation hypothesis has been addressed and confirmed in a number of Western samples (e.g., Grolnick et al., 1991; Levesque et al., 2004; Soenens & Vansteenkiste, 2003), evidence for this hypothesis in Eastern samples is still forthcoming.

To summarize, based on SDT, we hypothesized that autonomy support (vs. psychological control) would positively predict learning strategies and adjustment among Chinese learners, because the promotion of an internal perceived locus of causality for studying (i.e., autonomous motivation) is said to be universally beneficial. Hence, the direct effects of autonomy support (vs. psychological control) on learning attitudes and well-being should be mediated by relative autonomy for studying. In contrast, based on a relative cross-cultural perspective, it can be predicted that autonomy support (vs. psychological control) would result in less (rather than more) optimal functioning, because this parenting dimension would be perceived to be less legitimate in Eastern cultures.

Participants and Procedure

Thirty-five female (44 %) and forty-two male (53%) Chinese students who had emigrated to Belgium for on average 8 months filled out the questionnaires during a one-hour session in April 2003. Two participants failed to disclose their gender, making final N = 79. They came from very diverse regions in China, and lived in 4 different relatively small (less than one million inhabitants) Belgian cities. They were all involved in a one-year preparatory program in Belgium to learn Dutch in order to be able to progress to college or university studies. Participants' age varied from 18 to 28 with an average of 22.59.

Methods

All questionnaires included in the present study were translated from English to Chinese, the participants' mother tongue, according to the guidelines of the International Test Commission (Hambleton, 1994). Two native English speakers translated the English questionnaire in Chinese, which was in turn independently back translated by two native Chinese teachers who had both been teaching English for at least five years. If any problems arose, these were discussed in the presence of one of the authors, and a solution was agreed

on. Items were always scored on 5-point Likert scales, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), except for the Beck Depression Inventory.

Self-Regulation Questionnaire-Academics (SRQ-A; Ryan & Connell, 1989). A slightly different stem from Study 1 was used to assess students' different reasons for studying. Rather than asking for their reasons to study English, they were asked why they are studying in general. The four subscales again formed a relatively clear simplex-pattern, and a relative autonomy index (RAI) was created in the same way as in Study 1. Also, the composite scales of controlled and autonomous motivation were computed by summing respectively external and introjected regulation [$r(79) = .39, p < .01; \alpha = .70$] and identified and intrinsic regulation [$r(79) = .56, p < .01; \alpha = .82$].

Study Thoughts and Strategies. Three of the four subscales of the LASSI (Weinstein, Palmer, & Schulte, 1987) that were used in Study 1 were also assessed in the present study, that is, concentration ($\alpha = .83$), effective time management ($\alpha = .80$), and performance anxiety ($\alpha = .76$). In addition, we also included information processing, that is, the extent to which students thoughtfully and deeply process the learning material rather than scanning through it in a rather superficial manner ("When I am studying, I try to relate things to what I know already"; 8 items; $\alpha = .79$). Items were rated on a 5-point Likert scale ranging from 1 (*Not at all typical of me*) to 5 (*Very much typical of me*).

Subjective Well-being (SWB). Three different indicators of subjective well-being were assessed. We assessed positive and negative mood using the Positive Affect/Negative Affect Schedule (PANAS; Watson, Tellegen, & Clark, 1988), and assessed cognitive life satisfaction with the Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The PANAS consists of 20 mood adjectives, 10 positive (e.g., 'excited', 'pleased') and 10 negative (e.g., 'ashamed', 'distressed'). Participants were asked to rate how much they had experienced each mood 'in the past month or so' using a 1 (*Not at all*) to 5 (*Extremely*) scale. Internal consistencies for the scales in the present sample were .86 for positive affect, and .80 for negative affect. The SWLS asks participants to cognitively evaluate their present life as being (dis)satisfying (e.g., 'In most ways, my life is close to ideal'; 5 items). Items were rated on a 5-point Likert scale ranging from 1 (*Completely Disagree*) to 5 (*Completely Agree*). Internal consistency in the present sample was good ($\alpha = .78$). As in previous research (e.g., Sheldon & Kasser, 1995), a composite score of overall well-being was created by standardizing and summing positive affect and life satisfaction and subtracting negative affect ($\alpha = .87$).

Vitality. This seven-item scale (Ryan & Frederick, 1997) assesses participants' global feelings of energy, vigor, and aliveness over the past few months. Items were rated on a 5-point Likert scale ranging from 1 (*Completely Disagree*) to 5 (*Completely Agree*). Internal consistency was adequate in the present sample, $\alpha = .83$.

Depression. Participants completed the 20-item Center for Epidemiological Studies-Depression (CES-D) scale (Radloff, 1977), indicating how often they experienced specific depressive symptoms during the past week. Ratings were made on a scale ranging from (0) *rarely or none of the time (less than one day)*, over (1) *a couple of times (1-2 days)*, and (2) *sometimes or regularly (3-4 days)*, to (3) *most or all of the time (5-7 days)*. For each individual, a total severity of depression score was calculated by summing the responses. This produced a possible range of depression scores from 0 (low depression) to 60 (high depression). Cronbach's alpha was .90.

Physical complaints. Participants were administered 10 items from the Somatic Complaints scale of the authorized Dutch version of the Symptom Checklist-90 (SCL-90; Arrindell & Ettema, 1986). Participants were asked to indicate how often they experienced each of the physical complaints during the past week. Ratings were made on a scale ranging from 1 (*Very Rarely*) to 7 (*Very Often*).

Parental autonomy-support vs. psychological control. Two scales were administered, one assessing autonomy support and one assessing psychological control. Items for the psychological control scale were derived from the Parenting Scales (Lamborn et al., 1991), whereas autonomy support was tapped with five items from the autonomy support scale of the Perceptions Of Parents Scales (POPS, Grolnick et al., 1991). Psychological control (Barber, 1996) measures the degree to which adolescents perceive their parents as intruding upon their need for autonomy by such means as love withdrawal (or "contingent love"), guilt induction and instilling anxiety (seven items, e.g. "My mother/father is less friendly to me if I don't see things like he/she does"). Autonomy support taps the extent to which parents encourage their children to pursue their own interests and values. (5 items; e.g. "My mother/father, whenever possible, allows me to choose what to do."). Cronbach's alphas of both scales were .72 and .76 for psychological control and autonomy support, respectively. In line with the idea that autonomy-support as defined within SDT and psychological control are highly incompatible parenting styles (Grolnick, 2003; Soenens et al., 2004), both styles were found to be very highly negatively correlated in the present sample [$r(79) = -.73, p < .001$]. Furthermore, a principal component analysis indicated that all items loaded on one single factor. For these reasons and

in order to avoid problems with multicollinearity (Taq, 1997), psychological control items were reversed and summed with the autonomy-support items to form an autonomy-support vs. psychological control composite.

Results and Brief Discussion

Plan of Analyses

As in Study 1, we examined both the overall effects of relative autonomy on learning and well-being, and the separate effects of autonomous and controlled motivation through multiple regression analyses. Then, in a last step, we examined through Structural Equation Modeling (SEM) whether the effect of autonomy support vs. psychological control would be mediated by relative autonomy for studying. Because the number of participants in the present sample was limited in comparison with the number of relationships to be estimated through SEM, we first reduced the number of variables that were included in the model. Therefore, we performed a principal component analyses on the four learning (information processing, concentration, time management, performance anxiety) and the four adjustment outcomes (well-being, vitality, physical complaints, depression). Two clearly interpretable factors emerged, explaining 72% of the variance (eigenvalues = 4.41 and 1.43). The four well-being variables loaded significantly on the first factor, whereas the four learning variables loaded significantly on the second. Finally, we standardized and averaged the four variables in each category (after having reversed performance anxiety, depression and physical complaints) in order to obtain a learning attitude composite and an adjustment composite variable.

Preliminary Analyses

The correlations between all measured outcomes can be found in Table 3. Autonomy-supportive vs. psychologically controlling parenting was positively correlated with RAI and was negatively correlated with controlled motivation. The relationship with autonomous motivation was not significant, but in the expected direction. Furthermore, autonomy-supportive vs. psychologically controlling parenting was significantly positively correlated with the overall composite measure of learning, and with the specific aspects concentration, and effective time management (but not information processing), whereas it was significantly negatively related to performance anxiety. It was positively correlated with the adjustment composite measure, but was significantly negatively related to physical complaints. Although autonomy-supportive vs. psychologically controlling parenting did not significantly correlate with the three other

adjustment variables (well-being, vitality, and depression), all of the relations were in the expected direction.

The RAI was positively correlated with the learning composite, concentration, time management, information processing, the adjustment composite, well-being and vitality, whereas it was negatively correlated with performance anxiety and depression. Furthermore, as in Study 1, autonomous motivation was positively correlated with the three adaptive learning strategies (concentration, time management, and information processing). It was also positively related to well-being, and vitality, whereas it was significantly negatively related to depression. It was unrelated to performance anxiety and physical complaints. Concerning controlled motivation, it correlated negatively with the adjustment composite and well-being, but was unrelated to learning outcomes, physical complaints, vitality and depression, although all of these correlations were in the expected direction. As in Study 1, autonomous and controlled motivation were significantly positively correlated. Finally, all adaptive learning outcomes were positively correlated with each other and with well-being and vitality, whereas they negatively correlated with performance anxiety and depression, and were unrelated to physical complaints.

An independent sample t-test indicated that gender did not predict any of the dependent variables (all p 's > .05). Hence, both male and female participants were included in all subsequent analyses.

Primary Analyses

Multiple Regressions. As in Study 1, a series of multiple regression analyses was performed to explore the independent effects of autonomous and controlled motivation upon learning and well-being. As in Study 1, an interaction term was computed by multiplying the two centered variables of autonomous and controlled motivation. These results can be found in Table 4. Concerning learning, autonomous motivation positively predicted information processing, concentration and time management, but was unrelated to performance anxiety. The effects of controlled motivation on the learning outcomes were somewhat less strong compared to Study 1: controlled motivation was negatively related to time management, but the relationships with concentration and performance anxiety only approached significance; it was unrelated to information processing. Concerning adjustment, autonomous motivation positively predicted well-being and vitality, and was negatively related to depression. It marginally negatively predicted physical complaints. In contrast, controlled motivation negatively predicted

well-being and vitality, was positively related to depression, but unrelated to physical complaints. Finally, none of the interaction effects was significant.

Structural Equation Modeling. The second aim of this study was to explore whether any effect of autonomy-supportive vs. psychologically controlling parenting on learning and adjustment would be mediated by students' relative autonomy for studying. Structural equation modeling with manifest variables was used to test this mediated model. Analysis of the correlation matrices was conducted using LISREL 8.54 (Joreskog & Sorbom, 1996), and solutions were generated on the basis of maximum-likelihood estimation. Maximum-likelihood estimators are the most widely used method for obtaining parameter estimates in LISREL path analyses or structural equation modeling (Bollen, 1989). To assess the fit of the model to the observed data, we employed the chi-square statistic and the goodness of fit index (GFI; Joreskog & Sorbom, 1996). In addition, we also used the comparative fit index (CFI; Bentler, 1990) and the root mean square residual (SRMR) (Steiger, 1990), which are important indicators of adequate fit for small sample sizes (Hu & Bentler, 1999). A non-significant chi-square indicates a well fitting model (Bollen, 1989); fit indices above .90 are considered acceptable, as is an SRMR below .09 (Browne & Cudeck, 1993).

As mentioned above, the independent variable autonomy-supportive vs. psychologically controlling parenting and the mediating variable relative autonomy positively predicted the dependent variables adjustment and learning attitudes. Hence, the first two conditions for mediation were met (Kenny, et al., 1998). Then, the full model was tested with SEM. In line with the recommendations of Holmbeck (1997), two models were compared, one in which autonomy support (versus psychological control) is only indirectly related to adjustment and learning through relative autonomy (i.e., a full mediation model) and one model in which there was an additional significant path from autonomy support (versus psychological control) to learning and adjustment (i.e., a partial mediation model). Two different partial mediation models were tested, namely one in which autonomy support directly predicted learning and one in which autonomy support directly predicted adjustment.

The full mediation model fitted the data well [$\chi^2 (2, N = 79) = 3.68, ns$; CFI = .97; SRMR = .06]. Each hypothesized relationship was supported by a significant parameter estimate, and the full model is depicted in Figure 1. Adding a direct path from autonomy support (versus psychological control) to learning did not significantly increase the model fit [$\chi^2_{diff} (1, N = 79) = 3.01, ns$]. Similarly, adding a direct path from autonomy support (versus psychological control) to adjustment did not significantly increase the model fit [$\chi^2_{diff} (1, N = 79)$

= .01, *ns*]. Given that the partial mediation models did not improve the model fit, we concluded that the direct positive effect of autonomy-supportive vs. psychologically controlling parenting on both adjustment and learning were fully mediated by relative autonomous study motivation.

General Discussion

The results of two studies among Chinese students revealed four important findings. First, experiences of relative autonomy with respect to studying are conducive to optimal learning and academic success. Second, when this overall measure of motivation is broken down into its two primary subcomponents, that is, autonomous and controlled motivation to study, it was found that the former positively predicts adaptive learning and academic success, whereas the latter forestalls the optimal learning process and increases the likelihood of dropping out of the course. Third, the benefits associated with autonomous study motivation are not limited to learning outcomes, but they also radiate to students' well-being. Conversely, controlled study motivation is associated with reduced well-being and increased depression. Finally, an autonomy-supportive parenting style that is characterized by the offer of choice, empathic perspective-taking, and the minimal use of guilt- and shame-inducing tactics promotes adjustment and learning by enhancing Chinese students' relative autonomy with respect to studying. Below, we try to clarify how the current results shed further light on the ongoing controversy in the cross-cultural and educational research concerning the (mal)adaptiveness of experiences of autonomy among non-western populations.

Autonomy and Independence

A wealth of research indicates that strivings for uniqueness, individualism, and independence are less highly valued in Eastern societies compared with Western cultures, such as China (e.g., Kim & Markus, 1999; Kitayama et al., 2004). These findings have led a number of cross-cultural researchers to conclude that experiences of autonomy will not be vitalizing (e.g. Markus & Kitayama, 1991, 2003), or will even be detrimental to people involved in collectivistic cultures (e.g., Oishi, 2000). Intuitively, such a claim seems reasonable, and theorists who defend the matching-perspective (e.g., Meglino, Ravlin, & Adkins, 1989; Sagiv & Schwartz, 2000) might provide a further theoretical justification for this cross-cultural hypothesis. The matching-hypothesis holds that when people's own personal values (e.g., striving for independence) do not match or even conflict with the values prevailing and being emphasized in their direct environment and culture at large (e.g., forming a harmonious group), their well-being and optimal functioning is likely to be impaired. That is because people whose values do not fit with those of their environment are more likely to be socially sanctioned, to

experience more internal conflict, and to be provided with less opportunities to realize their own values (see Sagiv & Schwartz, 2000). Translated to the current situation, Chinese learners' individual pursuit of independence is unlikely to be associated with adaptive learning and well-being, because of the conflict with the emphasis on conformity, social cohesion, and harmonious group functioning in societies that hold a conjoint model of agency (Markus & Kitayama, 2003).

However, SDT does not define autonomy in terms of independence. According to SDT, autonomy is a psychological need and its satisfaction is critical for all individuals' optimal development. Autonomy is not conceptualized as a cognitive preference or an interpersonal value that is more or less emphasized depending on the cultural context, but it reflects the self-endorsement of actions on an inner, intra-individual level. If students' autonomy, defined in this way, is assessed, it appears that it is consistently positively related to learning outcomes among Chinese students. In both studies, an index of relative autonomy, summing across different types of self-determined motivation, was positively correlated with various indices of optimal learning, academic achievement and well-being, whereas it negatively predicted anxiety and ill-being.

In a further set of regression analyses, it was found that the two primary subcomponents of the relative autonomy index, that is, autonomous and controlled motivation had an independent effect upon most outcomes, suggesting that the overall effect of relative autonomy is due to both the beneficial impact of autonomous motivation and the debilitating impact of controlled motivation. For instance, autonomous motivation was associated with an adaptive learning pattern; it positively predicted a positive attitude towards studying in general, and a more efficient organization of one's study time. Furthermore, autonomously motivated students are better able to remain concentrated when studying, process the study material more thoughtfully, feel less anxious when faced with a testing situation, and obtained better test scores. They confirm SDT's contention that when people are free from pressures to learn, their selves are more fully engaged in learning, and they will more fully understand and be more flexible in utilizing the newly acquired information (Reeve, 2002). Furthermore, the beneficial impact of autonomous motivation was not restricted to learning outcomes, but it also positively predicted well-being and vitality, and reduced maladjustment, as indexed by the presence of depressive and physical complaints. These results are consistent with previous cross-cultural work within SDT in a Russian sample of students (Chirkov & Ryan, 2001).

Control and Conformity

Schooler (1990) argued that being an autonomous, self-directed individual who freely chooses beliefs and actions unhindered by official constraints "has been the goal of only a small portion of mankind" (p. 19). This statement was based upon the observation that values such as social harmony, conformity and interpersonal relationships are very much prevailing in Eastern cultures. We want to emphasize that we agree with such statements. However, we cannot give any assent to the claim that the emphasis on these types of values necessarily implies that feeling pressured to meet external expectations contributes to students' optimal development (Markus & Kitayama, 2003). As SDT argues, the critical issue to predict thriving is whether the enactment of a conformist behavior occurs in a willing, autonomous and choiceful or a resistant, controlling and coercive manner.

Consistent with these claims, the present research indicated that feeling pressured and controlled to study disrupts students' ability to concentrate while studying, stems an efficient organization of one's study time, provokes a negative attitude towards school, and enhances feelings of stress and performance anxiety. Importantly, it is associated with more passive/avoidant study behaviors, and it increases the probability of dropping out from the study course. To our knowledge, this represents the first time that the issue of drop-out has been studied from an SDT-perspective in non-Western samples, and the present result is fully consistent with previous research (e.g., Vallerand et al., 1997). In addition, controlled motivation negatively predicted well-being and was positively associated with depressive symptomatology. All together these findings conflict with Markus and Kitayama's (2003) argument that Eastern students might "flourish when they are forced to meet pressuring internal or external expectations" (p. 4). On the contrary, controlled motivation leads to reduced well-being and poorer learning behavior and outcomes, as anticipated by SDT.

Parenting and Autonomy

A final issue concerns the parental variables that enhance Chinese students' sense of autonomy and willingness to study. The present study revealed that the parenting composite scale of autonomy-support vs. psychological control positively predicts Chinese students' relative autonomous motivation for studying. Hence, if Chinese parents acknowledge their adolescents' feelings, provide a meaningful rationale if choice is constrained, and minimize the use of guilt and shame inducing strategies, their offspring is more likely to study out of interest and personal dedication than in order to meet external pressures or internal obligations. In addition, students' relative autonomous study motivation was found to fully mediate the direct effect of autonomy-support vs. psychological control on a composite measure of learning

attitudes and a composite measure of adjustment. These results replicate and extend other mediational models that have been found among Western samples (e.g., Levesque et al., 2004).

These results conflict with other researchers' claim that controlling parenting practices might yield a less harmful effect among Eastern adolescents, because such practices are more frequently used, and perceived as more legitimate. Although we agree that Chinese parents might, on average, be more controlling than their Western counterparts (e.g., Chao, 1994; Wu et al., 2002), these mean differences do not automatically suggest that controlling parenting would be adaptive in Eastern societies. In contrast, the present studies are in line with a recent study by Hasebe, Nucci, and Nucci (2004), who showed that parental control over the personal domain, which bears some conceptual overlap, equally predicts internalizing symptoms among American and Japanese students. Basically, our results confirm SDT's claim that autonomy-supportive vs. psychologically controlling parenting should predict less than optimal functioning, because such practices frustrate the universal need for autonomy.

Notably, the direct effect of parenting on well-being was smaller than the effect on learning attitudes. It should be noted that the current sample of Chinese students had moved temporarily to Belgium to study and, hence, had rather limited contact with their parents. Nevertheless, the parenting style appeared to impact both adjustment, and even more strongly learning attitudes. The latter seems logical because the primary goal for these Chinese students to move to Belgium was to study; hence, it can be expected that parents might, even over the phone or by e-mail, place subtle pressure or adopt a more supportive style when discussing study-related topics.

Limitations and Future Directions

Although the results of both studies provided consistent evidence for SDT, a number of limitations are worth being mentioned. First, the study is correlational in nature; hence, conclusions regarding the direction of effects cannot be drawn. For instance, it is possible that Chinese students who more effectively manage their study time create the opportunity for themselves to experience more enjoyment and better foresee the personal relevance of their studies (i.e., autonomous motivation). Future experimental and longitudinal research might help to shed light on the direction of this effect. Furthermore, the present data were mostly self-reported; hence, some of the relationships might be overestimated due to method-variance.

Future research might include parental reports of parental styles, and objective ratings of socially adaptive functioning.

Second, the research by d'Ailly (2003) indicates that the positive effects of relative autonomy for academic performance disappeared when controlling for perceived control, that is, participants' feelings of competence and efficacy with respect to studying. In contrast to this finding, Study 1 indicated that the effect of relative autonomy on learning and academic performance remained significant after controlling for students' expected achievement level, a variable that is likely to be associated with perceived control. However, future research might better directly assess students' perceived control rather than using such a derivative measure. According to SDT, autonomy and competence constitute two different needs, and, hence, should have an independent effect on adjustment and learning (see Patrick et al., 1993; Yamauchi & Tanaka, 1998).

Third, whereas SDT holds that the provision of autonomy-support, that is, the encouragement of volitional functioning (Soenens, et al., 2004), should entail beneficial learning and optimal well-being across cultures, it remains to be investigated whether the promotion of independence, as defined by Steinberg and colleagues (see Silk et al., 2003), is associated with similar adaptive outcomes in non-western societies. Based on the cross-cultural analyses of Markus, Kitayama, Chao and others, such relationships are not expected to hold among Chinese adolescents. In contrast, the promotion of interdependence, that is, the encouragement of building up and maintaining social harmony, should be associated with more adaptive functioning (Tseng, 2004).

Fourth, because participants in both samples had either undergone a selection procedure for being accepted in a foreign study program (Study 2) or were on the point of doing so (Study 1), they are likely to be highly selective in terms of capabilities. However, we expect the current findings to hold among students with lower capabilities as well, and we believe it is instructive to see that, in spite of this homogeneity of the current sample, the quality of Chinese students' motivation also matters in these samples.

Conclusion

As pointed out by many cross-cultural researchers, the type of values that are prevailing in different cultures can strongly vary: whereas individuality, uniqueness, and independence are central issues in disjoint models and individualistic societies, social harmony, conformity and interdependence are highly valued in conjoint models and collectivistic

societies. However, these different interpersonal values can be pursued for very different reasons, which vary from personal ownership and voluntary self-endorsement to coercive obedience and resistance. The results of the present research indicate that such a conceptualization of autonomy appears as fruitful to predict Chinese students' optimal learning and well-being as it has been in western populations; experiences of phenomenological freedom and volition are vitalizing rather than immobilizing for Eastern populations. It is our hope that these conceptual insights based upon SDT might contribute to a further exploration of important motivational dynamics that turn around culturally critical issues such as autonomy and independence, and control and conformity.

Footnotes

1. In addition to psychological control and autonomy-support, most developmental researchers (Barber 2002; Barber & Olsen, 1997; Gray & Steinberg, 1999) differentiate two other parenting styles or dimensions, that is, behavioral control and responsiveness. However, the present research focused on parental autonomy-support and psychological control because the examination of the effects of these parenting dimension seemed most useful in light of the ongoing controversy around the issue of autonomy in the literature.
2. Note that we consider parental autonomy-support --- as defined within SDT -- and psychological control to be highly incompatible parenting styles (Soenens, et al., 2004). Given their incompatibility, we assume in the present study that both styles can be situated at the same underlying dimension. Although this may seem to be in contrast to a recent study by Silk et al. (2003), who found that autonomy-granting and psychological control are distinct and even nearly orthogonal constructs, we believe it is not. In the Silk et al. (2003) study, autonomy-granting was operationalized as parents' support of independence. As we argue in this paper and elsewhere (Soenens et al., 2004), promoting independence is indeed largely unrelated to the extent to which parents are psychologically controlling. In contrast, the conceptualization of autonomy support that is used in the present study (i.e., autonomy support as promotion of volitional functioning) is thought to be strongly negatively related to psychological control (Grolnick, 2003).

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Table 1 *Intercorrelations Between Outcome Variables in Study 1 (N = 132)*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Years of English	-													
2. RAI	.05	-												
3. Autonomous Motivation	.07	.74**	-											
4. Controlled Motivation	-.04	-.49**	.17*	-										
5. Present Level of English	.13	.16	.16	.06	-									
6. Expected Level of English	.03	.19*	.14	-.09	.43**	-								
7. Learning Composite	.01	.48**	.21*	-.42**	.18*	.03	-							
8. Attitude	.03	.41**	.21*	-.32**	.10	.01	.84**	-						
9. Concentration	-.03	.38**	.17	-.32**	.19	.02	.85**	.65**	-					
10. Time Management	-.01	.42**	.16	-.38**	.12	-.01	.80**	.53**	.64**	-				
11. Performance Anxiety	.03	-.35**	-.13	.33**	-.17*	-.08	-.78**	-.49**	-.52**	-.55**	-			
12. Active/voluntary Behavior	.15	.32**	.45**	.12	.19*	.02	.04	-.12	.05	.14	-.07	-		
13. Passive/avoidant Behavior	.05	-.27**	-.05	.34**	-.02	-.05	-.55**	-.41**	-.55**	-.50**	.39**	.15	-	
14. Performance (N = 105)	.30**	.25*	.24*	.01	.29**	.19	.32**	.32**	.24*	.21*	-.24*	.23*	-.09	-
15. Drop-out (N = 127)	-.07	-.17	-.01	.23*	.02	.09	-.24*	-.26**	-.17	-.17	.17	.15	.14	--

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

RAI = Relative Autonomy Index

Table 2 *Beta-coefficients of Multiple Regression Analyses with Autonomous, Controlled Motivation and Interaction as Predictors for Learning Outcomes (N=132)*

	Autonomous Motivation	Controlled Motivation	Interaction	R ²
Self-reported Learning				
Attitude	.29**	-.39**	-.00	.19**
Concentration	.24**	-.37**	-.02	.16**
Time Management	.22*	-.45**	-.07	.21**
Performance anxiety	-.19*	.34**	-.06	.17**
Self-reported Class Behavior				
Active/voluntary Behavior	.41**	.02	-.08	.21**
Passive/avoidant Behavior	-.14	.37**	-.03	.13**
Actual Behavior				
Exam Performance (N = 105)	.21*	-.04	-.07	.06*
Drop-out (N = 127)	-.03	.25**	.08	.06*

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

Table 3 *Intercorrelations Between Outcome Variables: Study 2 (N = 79)*

	1	2	3	4	5	6	7	8	8	9	10	11	12
1. AS vs. PC parenting	-												
2. RAI	.37**	-											
3. Autonomous Motivation	.16	.61**	-										
4. Controlled Motivation	-.28*	-.55**	.32**	-									
5. Learning Composite	-.34**	.43**	.43**	.05	-								
6. Information Processing	.16	.26*	.37**	-.09	.69**	-							
7. Concentration	.28**	.44**	.46**	-.04	.91**	.49**	-						
8. Time Management	.34**	.46**	.45**	-.07	.89**	.53**	.81**	-					
9. Performance anxiety	-.33**	-.22*	-.10	.16	-.76**	-.23*	-.66**	-.59**	-				
10. Adjustment Composite	.24*	.44**	.31**	-.24*	.53**	.22*	.52**	.47**	-.53**	-			
11. Well-being	.13	.44**	.28*	-.26*	.54**	.25*	.50**	.48**	-.52**	.88**	-		
12. Vitality	.13	.41**	.34**	-.16	.54**	.37**	.51**	.44**	-.45**	.82**	.77**	-	
13. Physical complaints	-.22*	-.21	-.15	.13	-.14	.00	-.15	-.10	.20	-.57**	-.30*	-.21	-
14. Depression	-.18	-.32**	-.22*	.18	-.46**	-.08	-.46**	.45**	.52**	-.82**	-.69**	-.58**	.27*

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

AS = autonomy support / PC = psychological control

RAI = Relative Autonomy Index

Table 4 *Beta-coefficients of Multiple Regression Analyses with Autonomous, Controlled Motivation and Interaction as Predictors for Learning and Adjustment Outcomes (N = 79)*

	Autonomous Motivation	Controlled Motivation	Interaction	R ²
Learning Composite	.49**	-.19	-.05	.22**
Information Processing	.38**	-.02	.05	.14**
Concentration	.53**	-.19	-.01	.25**
Time Management	.52**	-.22*	-.03	.24**
Performance anxiety	-.17	.20	-.02	.05*
Adjustment Composite	.41**	-.35**	-.04	.22**
Well-being	.36**	-.36**	-.11	.22**
Vitality	.42**	-.28*	-.03	.19**
Physical complaints	-.23	.20	-.08	.06*
Depression	-.32**	.29*	-.05	.12**

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

Figure 1 Summary of the mediating model that was tested in Study 2

Note: * $p < .01$, ** $p < .001$.