

Autonomy and Relatedness among Chinese Sojourners and Applicants: Conflictual or Independent Predictors of Well-Being and Adjustment?

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Abstract Self-Determination Theory argues that relatedness and autonomy represent innate and universally critical needs and that, when satisfied, both needs should yield an independent positive effect on well-being and adjustment for all individuals. In contrast, some cross-cultural perspectives suggest that the pursuit of autonomy hampers the development of satisfying relationships, and such conflicts might be especially problematic for the well-being of individuals in collectivistic societies that value social bonds over the pursuit of uniqueness and independence. The present study sampled Chinese students who had temporarily moved to Belgium to study (i.e., sojourners) and Chinese students involved in the application procedure to study in Belgium (i.e., applicants). Consistent with SDT, the present research shows that the basic psychological needs for autonomy, relatedness, and competence are positively interrelated, that the satisfaction of these three needs predicts unique variance in Chinese students' psychological well-being, vitality, and depression (i.e., main effects), and that autonomy satisfaction yields a more beneficial effect on vitality and better protects against depressive feelings when relatedness satisfaction is low (i.e., an interaction effect). Finally, mean-level differences in well-being between Chinese sojourners and applicants could be fully accounted by differential need satisfaction.

Keywords Autonomy · Relatedness · Self-determination theory · Cross-cultural psychology · Sojourner adaptation

The dynamics of autonomy and relatedness have captured the theoretical and empirical attention of psychologists in

cross-cultural (e.g., Kagitçibasi, 1996), developmental (e.g., Steinberg, 1990), and motivational psychology (e.g., Ryan & Solky, 1996). One particular motivation theory, that is, Self-determination theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2003) maintains that autonomy and relatedness are highly compatible, innate human needs. Moreover, the theory suggest that, when satisfied, these two needs should explain independent variance in adjustment among all individuals, even those living in collectivistic cultures (Hodgins, Koestner, & Duncan, 1996). In contrast, various cross-cultural perspectives (e.g., Cross & Gore, 2003; Markus & Kitayama, 2003) argue that autonomy and relatedness are incompatible strivings, so that the simultaneous pursuit of them causes inner tension, thereby undermining adjustment and well-being. This would be especially true for individuals living in collectivistic societies that place high emphasis on social harmony rather than on individual expressiveness and autonomy (e.g., Markus & Kitayama, 1991). The present study aimed to explore these diverging hypotheses in a sample of Chinese students who were reared in a collectivistic society.

Self-determination theory

SDT argues that all individuals, regardless of their culture, are endowed with a set of basic organismic psychological needs, the fulfilment of which promotes optimal functioning. Three basic psychological needs have been distinguished, that is, autonomy, relatedness and competence. SDT maintains that, on average, autonomy and relatedness are highly compatible psychological needs that should be positively correlated. Such a claim is understandable in light of SDT's conceptualization of autonomy, that is, the volitional and self-endorsed engagement of behavior. People act in an autonomous fashion when they behave in accordance with

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their emerging interests and/or integrated values. Autonomy is contrasted with feeling pressured or controlled to partake in a particular activity (Ryan & Deci, 2004; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). Such a definition of autonomy avoids any polarisation of the dynamics of autonomy and relatedness, because a willing and volitional engagement in an activity (i.e., autonomy) might well be compatible with building up trusting and satisfying relationships (i.e., relatedness). For instance, individuals can volitionally turn to others for emotional support (Ryan, La Guardia, Solky-Butzel, Chirkov, & Kim, 2005), they can feel supported to willingly pursue their personal commitments and interests (Soenens & Vansteenkiste, 2005), or they can adhere to social norms and requests because they reflectively value doing so (Ryan, 1993; Vansteenkiste, Zhou, Lens, & Soenens, 2005). In each of these cases, individuals experience a sense of connectedness with another person or with the culture at large while simultaneously acting in a volitional (i.e., autonomous) fashion (see also Blatt & Blass, 1996; Kagitçibasi, 2005 for a similar viewpoint).

Consistent with this reasoning, previous research found that feeling autonomous in one's relationship contributes to the felt security in that relationship (La Guardia, Ryan, Couchman, & Deci, 2000) and that individuals who act upon their personal interests and values (i.e., autonomously) experience their parent and peer relationships as more honest, open and satisfying (Hodgins *et al.*, 1996). Further, research has shown that parents who are experienced as autonomy-supportive are also viewed as responsive and caring and that autonomy-supportive parenting facilitates an autonomous regulation of one's friendships, which, in turn, positively predicts social competence (Soenens & Vansteenkiste, 2005). These results indicate that autonomy, as defined and operationalized within SDT, does not imply choosing between the maintenance of a close relationship with parents nor the loss of parental bonds to become more closely related to peers (see also Soenens *et al.*, 2005). Similarly, other research among primarily Western samples has shown that individuals who get their need for relatedness met, on average, also have their need for autonomy met (e.g., Sheldon & Bettencourt, 2002). Therefore, we predicted that autonomy and relatedness would be positively correlated.

SDT further emphasizes that the issue of feeling volitional in initiating and regulating one's behavior (i.e., autonomy) should be differentiated from experiencing a sense of effectiveness and mastery over attaining desired outcomes (i.e., competence). When individuals feel competent in carrying out a particular activity, they might simultaneously experience the behavior as choiceful and as reflecting their personal values and interests, or they might experience a sense of pressure and coercion for doing the behavior. Thus, autonomy and competence need to be differentiated, al-

though both needs will, on average, be positively correlated (e.g., Levesque, Zuehlke, Stanek, & Ryan, 2004).

In line with SDT's claim that each of these three needs represent necessary nutrients for individuals' optimal functioning (Deci & Ryan, 2000), previous studies have shown that the satisfaction of these three basic psychological needs predicts independent variance in (a) people's day-to-day well-being (e.g., Reis, Sheldon, Gable, Roscoe, & Ryan, 2000), (b) employees' job functioning (Deci *et al.*, 2001; Vansteenkiste *et al.*, 2005), (c) adolescents' secure relationships with attachments figures (La Guardia *et al.*, 2000), (d) university students' well-being when experiencing positive events (Sheldon, Elliot, Kim, & Kasser, 2001), (e) elderly nursing home residents' psychological well-being (Kasser & Ryan, 1999) and, most recently, (f) third and seventh graders' well-being (Véronneau, Koestner, & Abela, 2005). Except for the study by Deci *et al.* (2001) and Sheldon *et al.* (2001), which comprised a Russian and South-Korean subsample, all studies sampled Western, individualistic individuals. Hence, SDT's need-based predictions require further investigation among collectivistic samples. We hypothesized that the satisfaction of all three needs would also uniquely predict adjustment among Chinese students because these needs represent innate and universal propensities that promote *all* individuals' thriving and adjustment, just as water and sunshine promote plants' survival and flourishing (Ryan, 1995).

Relativistic cross-cultural viewpoint

Various relativistic cross-cultural researchers have criticized SDT's universalistic viewpoint and especially SDT's view that autonomy yields universal positive effects (e.g., Ford, 1992; Iyengar & DeVoe, 2003; Markus & Kitayama, 1991, 2003). These cross-cultural psychologists argued that autonomy corresponds less with Eastern cultures that embrace collectivistic (instead of individualistic) values (Triandis, 1996), and that autonomy is less relevant for individuals who hold an interdependent (instead of an independent) self-concept (Markus & Kitayama, 1991). In other words, according to these cross-cultural perspectives, autonomy strivings will conflict with the development of socially harmonious and interdependent relationships in collectivistic societies (Cross & Gore, 2003). Consistent with such a claim, a variety of studies (Cialdini, Wosinka, Barrett, Bunter, & Gornik-Durose, 1999; Kim & Markus, 1999) has shown that individuals residing in collectivistic societies are more likely to follow social norms and are less likely to act upon their individual and unique preferences (e.g., Kitayama, Snibbe, Markus, & Suzuki, 2004) compared to individuals coming from individualistic societies.

These criticisms of SDT are, however, based on a specific definition of autonomy. Within these cross-cultural perspectives, autonomy is equated with the pursuit of individualism and self-direction, that is, the development of an independent self, unconstrained by others' expectations. The realization of one's self-interest is said to interfere with the development of satisfying relationships, because other individuals must be controlled, influenced or even used to achieve one's personal desires and goals. Such a viewpoint suggests that the pursuit of autonomy and relatedness will necessarily be in conflict.

Furthermore, such an autonomy-relatedness conflict might even be more prevalent among individuals in collectivistic cultures, because a collectivistic person's concern with expressing individuality will oppose the cultural focus on maintaining social bonds. Thus, because of its conflict with relatedness-striving, which is emphasized in collectivistic cultures at large, pursuing independence, individuality, and autonomy would create inner tension and result in lowered adjustment and well-being (Burroughs & Rindfleisch, 2002; Sagiv & Schwartz, 2000). Hence, individuals living in collectivistic societies might better focus on pursuing relatedness to increase their well-being and optimal functioning, because the culture at large highly values the development and maintenance of social bonds. Because individuals' own values match in such cases with those emphasised by the culture at large, such value-compatibility would promote thriving.

In sum, on the basis of a relativistic cross-cultural perspective, one would expect that the effect of autonomy would be unrelated or even negatively related to the well-being of individuals from collectivistic cultures. This expectation clearly conflicts with SDT's claim that autonomy and relatedness represent independent positive predictors of individuals' well-being across the globe.

Present study

The present study examined predictions derived from SDT and cross-cultural perspectives regarding the compatibility of autonomy and relatedness in a group of Chinese students. The majority of these students had temporarily moved to Belgium to study (for about 8 months on average), whereas a smaller percentage of students were still in China and were involved in an application procedure to study at a Belgian college. Whereas the former group of students is commonly described as 'sojourners' in the literature on cross-cultural adjustment (Church, 1982; Swagler & Jome, 2005), the latter group of students was referred to as 'applicants' in the remainder of this manuscript.

Because the transition to and adjustment to a new socio-cultural environment is often experienced as stressful and

need thwarting (Berry & Kim, 1988), some have referred to this phenomenon as a *cultural shock* (Ward, Bochner, & Furnham, 2001). Consistent with the idea that the adjustment process is stress-provoking, past research (e.g., Zheng & Berry, 1991) has shown that Chinese sojourners experienced poorer psychological health after arrival in Canada compared to pre-departure, and that they experienced more adaptation and communication problems compared to non-Chinese Canadians and Chinese-Canadian students (see also Chataway & Berry, 1989; Ward & Kennedy, 1993). For this reason, we expected sojourners to report lower psychological well-being compared to applicants.

We further expected that such mean level differences in psychological well-being would occur because sojourners, relative to applicants, would experience a sense of cultural estrangement and alienation (Chirkov, Ryan, & Willness, 2005). Such an experience of cultural estrangement would follow from sojourners' more limited opportunities for basic psychological need satisfaction in their new socio-cultural environment. For instance, sojourners face the task of building up new relationships (Anderson, 1994) and coping with the gradual loss of their old relationships, so that they might experience less relatedness-satisfaction. Sojourners need to explore a new cultural environment, society, and academic system by which they might feel overwhelmed, so that they feel ineffective in dealing with their new surroundings (Black, Mendenhall, & Oddou, 1991; Church, 1982). So, sojourners might often lack cultural competence, that is, they might not feel competent to function effectively in their new cross-cultural situation. Finally, Chinese sojourners might experience a strong pressure to abandon their Eastern, collectivistic values in favour of Western and rather individualistic ideals promoted by the host country (Anderson, 1994). Such pressures might undermine their need for autonomy. Thus an additional feature of the present research yielded the examination of basic need satisfaction as a mediator for the expected mean differences in psychological well-being between Chinese sojourners living in Belgium and Chinese applicants still living in China.

The following three hypotheses were examined. First, we examined whether autonomy and relatedness represent two conflicting strivings, so that the satisfaction of one detracts from the satisfaction of the other, as suggested by cross-cultural researchers but contradicted by SDT. Second, we examined whether the satisfaction of the three needs would predict independent variance in participants' adjustment, as suggested by SDT. Further, based on relativistic cross-cultural perspectives, we examined whether the anticipated positive effect of autonomy for the well-being of collectivistic oriented individuals would be absent or that autonomy would even have a negative effect in case of high relatedness-levels. In other words, the main effect of autonomy would be moderated by relatedness, so that high levels of both would

result in inner conflict and tension, which, in turn, would lead autonomy to be unrelated or even negatively related to well-being. Third, because moving to a new country represents a stressful event, we expected that Chinese sojourners would display lower adjustment compared to Chinese applicants in China, and that these mean differences would be mediated by basic need-satisfaction.

Method

Participants and procedure

Sixty-six male (54%) and 53 female (44%) Chinese students participated in the study. Two participants failed to provide their gender (total $N = 121$). The sample consisted of two subsamples, that is, 79 participants who had temporarily moved to Belgium to study and 42 participants who were involved in an application procedure to move to Belgium to study at the college level. The sojourners had lived in Belgium for on average 8 months. These participants filled out the questionnaires during a one-hour session in April 2003. The students 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. The subsample of applicants filled out the questionnaires during their application interview (May 2003) that was held by a Belgian organization in China that is specialized in helping Chinese students who move to Belgium in terms of housing, administration, and schooling. The Chinese students in both subsamples came from very diverse regions in China. Participants' age varied from 18 to 42 years with an average of 23 years.

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 presence of one of the authors, and a solution was agreed upon.

Basic need satisfaction

The satisfaction of participants' basic needs for autonomy (e.g., 'In my daily life, I frequently have to do what I am told', reverse scored; 7 items), competence (e.g., 'I often do not feel very capable', reverse scored; 6 items),

and relatedness (e.g., 'People in my life care about me'; 8 items) over the past month was assessed. Items were rated on 7-point Likert scales, ranging from 1 (*Completely Disagree*) to 7 (*Completely Agree*). This questionnaire has been used in various other studies (e.g., Deci *et al.*, 2001; Reis *et al.*, 2000) and showed acceptable internal consistency. Autonomy ($\alpha = .61$), competence ($\alpha = .66$), and relatedness ($\alpha = .79$) scores were created by averaging the items of the separate need-satisfaction scales. A measure of total need satisfaction was created by summing and averaging all need satisfaction items ($\alpha = .87$).

Subjective well-being (SWB)

Three indicators of well-being were assessed. The Positive Affect Negative Affect Schedule (PANAS; Watson, Tellegen, & Clark, 1988) assesses individuals' positive and negative mood and consists of 10 positive (e.g., 'excited') and 10 negative (e.g., 'sad') mood items. 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. The Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) asks participants to evaluate their present life as being 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*). 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. Internal consistency of this composite scale was .87.

Vitality

This seven-item scale (Ryan & Frederick, 1997) assessed 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 .84.

Depression

Participants completed the 20-item Centre 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*) 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 ($\alpha = .92$).

Table 1 Means and standard deviations of Chinese applicants and Chinese sojourners together with *F*-values of univariate analyses of variance

	Chinese applicants (<i>N</i> = 42)		Chinese sojourners (<i>N</i> = 79)		<i>F</i> -value (1, 115)
	Mean	<i>SD</i>	Mean	<i>SD</i>	
1. Total need satisfaction	5.65	.58	4.97	.72	27.72***
2. Autonomy satisfaction	5.51	.77	5.09	.79	7.74***
3. Competence satisfaction	5.52	.84	4.85	.85	16.75***
4. Relatedness satisfaction	5.93	.61	4.97	.83	42.77***
5. Psychological well-being	5.23	1.35	4.04	1.55	16.91***
6. Vitality	3.84	.54	3.29	.65	20.85***
7. Depression	.40	.28	.82	.57	18.71***

****p* < .001.

Results

Preliminary analyses

Missing values for some of the outcome variables resulted in a loss of four persons, so that 117 participants were included in the final analyses. A first MANOVA-analysis indicated that male and female participants did not differ on any of the outcomes, $F(6,110) = .88$, *ns*; hence, gender was discarded as a predictor from further analyses. A second MANOVA-analysis indicated that Chinese applicants and Chinese sojourners differed from each other across all outcomes, $F(6,110) = 7.83$, $p < .001$. Univariate ANOVA-analyses indicated that Chinese applicants, compared to Chinese sojourners, obtained higher scores for total need satisfaction, for all three separate need satisfaction scores, psychological well-being, and vitality, whereas they scored lower on depression. Means, standard deviations for both groups as well as *F*-values of univariate ANOVA's can be found in Table 1.

The correlations between the outcome measures can be found in Table 2. As hypothesized by SDT, the construct of total need satisfaction as well as all three separate need satisfaction scores were positively correlated, and they were all positively correlated with psychological well-being and vitality and negatively correlated with depression. Psychological well-being and vitality were positively correlated and were both negatively correlated with depression.

Table 2 Intercorrelations among variables

	1	2	3	4	5	6
1. Total need satisfaction	—					
2. Autonomy need satisfaction	.81***	—				
3. Competence need satisfaction	.88***	.54***	—			
4. Relatedness need satisfaction	.89***	.57***	.69***	—		
5. Psychological well-being	.68***	.56***	.58***	.60***	—	
6. Vitality	.65***	.51***	.58***	.60***	.79***	—
7. Depression	-.63***	-.56***	-.46***	-.61***	-.68***	-.60***

****p* < .001.

Primary analyses

Regression analyses

To explore whether the satisfaction of the three basic needs independently predicts adjustment outcomes, we performed three different regressions in which each outcome was regressed on the three need measures. Further, to examine whether the effect of autonomy would differ according to Chinese participants' level of relatedness, we created an interaction term by multiplying both centered means (Aiken & West, 1991). This interaction term, in addition to the two other two-way interactions terms (i. e. autonomy by competence and competence by relatedness), were entered in a second step in a hierarchical regression analysis, after entering the main predictors in the first step. The results can be found in Table 3.

Autonomy, competence and relatedness independently predicted psychological well-being and vitality, and autonomy and relatedness (but not competence) negatively predicted depression. These main effects remained unchanged after entering the two-way interactions in the regression equation. Three interaction terms were found to be significant. The interaction between autonomy and relatedness was significant in the prediction of both vitality and depression. To investigate these interactions in more detail, we examined whether the slopes between autonomy and respectively vitality and depression would differ depending on the level of relatedness. To this aim, we created two equally

Table 3 Beta-regression coefficients for the prediction of adjustment on the basis of basic need satisfaction

	Psychological Well-being		Vitality		Depression	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
	1. Autonomy Satisfaction (A)	.27**	.26**	.19*	.19*	-.31***
2. Competence Satisfaction (C)	.24*	.26**	.25*	.27**	.01	-.03
3. Relatedness Satisfaction (R)	.28**	.28**	.31**	.27**	-.43**	-.41***
4. A × R		-.15		-.30**		.28***
5. A × C		.01		.24**		-.04
6. C × R		.05		.08		-.05
R ²	.46***	.48***	.43***	.49***	.43***	.49***
R ² -change		.02		.06**		.06**

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

large groups on the basis of their median scores of relatedness, so that we obtained a group of individuals experiencing low and high relatedness satisfaction.¹ It was found that the effect of autonomy on vitality was stronger for individuals with low levels of relatedness-satisfaction ($\beta = .47, p < .01$) compared to individuals with high levels of relatedness-satisfaction ($\beta = .36, p < .05$). In a similar vein, the effect of autonomy on depression was stronger for individuals with low levels of relatedness-satisfaction ($\beta = -.60, p < .01$) compared to individuals with high levels of relatedness-satisfaction ($\beta = -.30, p < .05$). This interaction effect is graphically displayed in Fig. 1. Finally, autonomy and competence interacted in the prediction of vitality. After forming two equally large groups on the basis of median scores of autonomy, it was found that competence less strongly predicted vitality among individuals with low ($\beta = .32, p < .05$) compared to high ($\beta = .54, p < .01$) levels of autonomy satisfaction.¹

Mediational analyses

To examine whether the mean difference between Chinese applicants and Chinese sojourners would be mediated by the amount of basic need satisfaction both groups experience, we performed an additional series of mediational regression analyses, as recommended by Judd and Kenny (1981). We first dummy coded the group participants belong to, with sojourners being assigned the value ‘1’ and ‘applicants’ being assigned the value ‘2’. Mediation can be concluded if a significant effect of the independent variable (i.e., sojourners versus applicants) on the dependent variable (i.e., adjustment

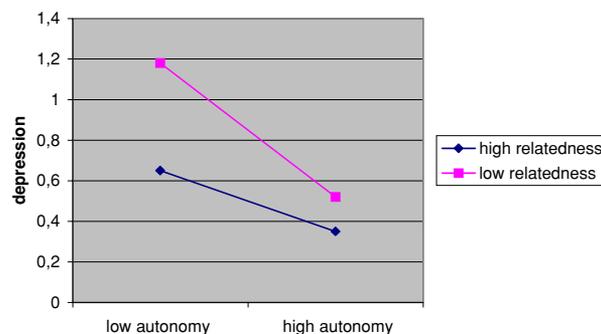


Fig. 1 Depression as a function of autonomy and relatedness satisfaction

outcomes) decreases in magnitude and becomes nonsignificant when the mediator (i.e., basic need satisfaction) is added to the equation, assuming the mediator remains a significant predictor of the outcome.

As mentioned above, there were main differences between applicants and sojourners on all three adjustment outcomes and all three need satisfaction measures, suggesting that the first and second requirement for mediation were met. We proceeded by entering group membership (i.e., applicant vs. sojourner) in the first step of the regression, and the three basic need measures as a block in the second step of the regression. This procedure was repeated for each of the three adjustment outcomes. With respect to psychological well-being, the direct effect of group membership ($\beta = -.36, p < .001$) became non-significant ($\beta = -.08, ns$) after entering the three need satisfaction predictors in the equation, with autonomy ($\beta = .28, p < .01$), competence ($\beta = .24, p < .05$) and relatedness ($\beta = .24, p < .05$) independently predicting psychological well-being. With respect to vitality, the direct effect of group membership ($\beta = -.39, p < .001$) became non-significant ($\beta = -.13, ns$) after entering the three need satisfaction predictors in the equation, with autonomy ($\beta = .19, p < .05$), competence ($\beta = .25, p < .05$) and relatedness ($\beta = .24, p < .05$) independently predicting vitality. Finally, with respect to depression, the direct effect of group membership ($\beta = .38, p < .001$) became non-significant ($\beta = .13, ns$) after entering the three needs in the

¹ We also examined whether the effects of autonomy, competence and relatedness satisfaction on adjustment would be different for Chinese participants residing in China (i.e., applicants) compared to Chinese participants that were living in Belgium (i.e., sojourners). Interaction terms were created by multiplying centred means for group membership and need satisfaction, and these interaction terms were added in the regression analyses. None of the nine interactions (i.e., three for each adjustment outcome) reached significance. Hence, the main effects of autonomy, relatedness and competence satisfaction on adjustment apply for both Chinese applicants and sojourners.

prediction; autonomy ($\beta = -.33, p < .001$) and relatedness ($\beta = -.35, p < .01$) but not competence had an independent effect on depression. In short, these mediational results indicate that any adjustment differences between Chinese sojourners and Chinese applicants could be fully explained by the differential amount of basic need satisfaction (autonomy, relatedness and competence) these two groups experience in their daily lives.

Discussion

The present study examined whether autonomy and relatedness form two compatible needs, the satisfaction of which predicts unique variance in Chinese students' adjustment, as suggested by SDT, or whether autonomy and relatedness would conflict with each other, so that the pursuit of autonomy hinders the development of relatedness, thereby resulting in lower well-being, as suggested by cross-cultural researchers (e.g., Cross & Gore, 2003; Markus & Kitayama, 2003).

The results confirmed SDT's universalistic needs model: both autonomy and relatedness satisfaction were positively correlated and explained independent variance in Chinese students' psychological well-being, depression and vitality. Furthermore, the satisfaction of the third postulated need within SDT, that is, competence, had an additional significant effect on vitality and psychological well-being beyond the effects of autonomy and relatedness satisfaction.

These main effects remained significant after entering two-way interaction terms in the equation, which aimed to examine whether the effect of autonomy on adjustment among individuals residing in collectivistic cultures would differ according to their level of experienced relatedness, as suggested by relativistic cross-cultural viewpoints. Autonomy and relatedness interacted significantly in two out of three cases. The interaction effect on depression indicates that the negative effect of autonomy on depression was especially strong under conditions of low compared to high relatedness satisfaction. It is important to note, though, that autonomy satisfaction was significantly negatively related to depression under conditions of low and high relatedness satisfaction. These results suggest that autonomy satisfaction might play a buffering role when relatedness satisfaction is low. That is, the ability to function in a volitional fashion and to get one's need for autonomy met seems to be primarily protective against depressive feelings when Chinese students experience little interpersonal intimacy and connection with their in-groups. The interaction on vitality was completely analogous: autonomy was more strongly associated with vitality under conditions of low compared to high relatedness satisfaction. These results suggest that Chinese students who fail to build up satisfying relationships will benefit somewhat

more from autonomy satisfaction in terms of experienced vitality compared to students who have their need for relatedness met. The interaction term for psychological well-being was in a similar direction, but did not reach significance.

In short, the current results provide considerable evidence for SDT's claim that relatedness and autonomy represent universal and innate psychological needs, the satisfaction of which should predict adjustment regardless of the values emphasized in one's culture. Furthermore, the current results seem to contradict relativistic cross-cultural perspectives which suggest that autonomy should be unrelated or even *negatively* related to well-being when relatedness is high. The latter hypothesis is based on the assumption that the pursuit of autonomy will interfere with the development of satisfying relationships, which would be especially true in collectivistic cultures that place high emphasis on the maintenance of social bonds and de-emphasize the pursuit of uniqueness, independence and autonomy. Different from such a relativistic cross-cultural perspective, Chinese students were found to benefit from acting autonomously when relatedness satisfaction was low in the sense that these volitionally behaving individuals felt more vital and were less susceptible for experiencing depressive feelings.

In addition to these interactions, autonomy and competence interacted in the prediction of vitality, so that feeling competent in reaching particular outcomes more strongly predicts vitality if these feelings of effectiveness are coupled with experiencing a sense of ownership in one's behavior. These results are in line with Ryan's (1982) finding that positive feedback more strongly enhances intrinsic motivation when provided in an autonomy-supportive, instead of controlling, fashion. Apparently, for feelings of competence to be truly vitalizing, people need to experience themselves as the initiator of their behavior. We would like to note, however, that the interactions obtained in this study need to be interpreted with caution as this study represents, to our knowledge, the first attempt to examine possible interactions between need satisfaction variables in the prediction of adjustment. Clearly, more research among both Western and Eastern samples is needed to examine whether the current interaction effects can be replicated.

One other interesting finding emerged in the current research. Consistent with various authors' claim (e.g., Searle & Ward, 1990) that moving to a new country represents a stressful life transition, Chinese students who were still involved in an application procedure to study abroad displayed higher levels of psychological well-being and vitality and lower levels of depression compared to Chinese students who had moved to Belgium. These findings are fully in line with the phenomenon of cultural shock referred to in the migration literature (Ward, Bochner, & Furnham, 2001). Moreover, the present research shed some preliminary light on the mechanism that might explain why moving

to a different country yields harmful effects for one's adjustment. Specifically, the mean differences in well-being, vitality and depression between both subsamples could be fully accounted for by Chinese sojourners' reduced opportunities for basic psychological need satisfaction in Belgium. Chinese sojourners' lower ability to get their daily needs met is likely to contribute to the experience of cultural estrangement (Chirkov *et al.*, 2005) in the sense that sojourners rather feel alienated from the culture where they are temporarily living in. Future research might want to examine in more detail whether particular personality (e.g., locus of control; see Ward & Kennedy, 1993) and social-contextual factors (e.g., quality and quantity of social support; see Adelman, 1988) might help to buffer against decreased need satisfaction and lower well-being among Chinese sojourners.

Limitations and future directions

A number of limitations need to be mentioned, including the correlational and cross-sectional nature of the research, which precludes the conclusions regarding the direction of effects. For instance, it is possible that depressed individuals have less energy available to successfully complete their daily activities (competence), to relate in committed ways to others (relatedness) and to take initiative in carrying out their plans (autonomy). In other words, deprived need satisfaction might not only contribute to higher depression, but might also be a consequence of it, so that depressed individuals get caught in a self-sustaining negative cycle. Longitudinal research is needed to examine these possibilities. Longitudinal research would also help to examine whether moving to a new country that promotes values that are very different from one's own country effectively results in a decrease in adjustment and need satisfaction, a question that could not be answered in the present research due to the lack of follow-up data. Such research might not only include assessments of psychological sojourner adaptation, but also of socio-cultural adjustment to obtain a fuller picture of the adaptation process sojourners are going through (Searle & Ward, 1990). Furthermore, it must be noted that the present data were all self-reported; hence, some of the relationships might be overestimated due to method-variance. Future research might include peer-reports of need-satisfaction and adjustment. Furthermore, because participants had temporarily migrated to a Western country or were about to do so, they might have a more independent than interdependent self-concept (Markus & Kitayama, 1991), which might, according to cross-cultural researchers, explain the beneficial effects of autonomy in the current studies. Future research might want to directly assess Chinese sojourners' self-concepts (e.g., Cross, 1995; Oguri & Godykunst, 2002) to explore whether type of self-concept moderates the autonomy satisfaction to well-being relations, as predicted by relativistic cross-cultural psychol-

ogists, but not by SDT. Finally, the current research only relied on one comparison group (i.e., applicants). However, future research might include a comparison group of Chinese students who are not involved in an application procedure to study abroad, a comparison group of Chinese students who have been living in the host country for a longer period of time or a control-group of Belgian students, who are not involved in any migration procedure at all.

Conclusion

Consistent with SDT, the present research shows that autonomy, when defined as the self-endorsed engagement of one's behavior, and relatedness represent two important and highly compatible basic psychological needs, the satisfaction of which is also critical for individuals living in a collectivistic society. However, the detection of the basic ingredients of individuals' well-being and adjustment leaves the question unanswered whether the satisfaction of the needs for autonomy and relatedness occurs in a different way in collectivistic compared to individualistic societies. Future research might examine more specifically whether the same contextual factors (e.g., choice) contribute to the satisfaction of autonomy and relatedness among individuals of these different cultures (see e.g., Iyengar & Lepper, 1999). Such research would help to advance our understanding of the concrete means through which basic need satisfaction is facilitated in different cultures.

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