Goal Contents and Goal Contexts: Experiments With Chinese Students

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Using samples of Chinese middle school students, the 2 experimental studies presented here examined the effects of goal content and goal context on test performance, free-choice engagement, and test anxiety within the framework of self-determination theory. Students' learning goals were induced as intrinsic or extrinsic with the learning contexts of either autonomy-supportive or controlling. Results suggested that as the more recent extensions of self-determination theory, goal content and goal context effects existed among our samples of Chinese middle school students. However, there was some inconsistency between the authors' findings and previous findings in Western culture.

Keywords *Chinese students, goal content, goal context, self-determination theory*

AT EDUCATIONAL SETTINGS, STUDENTS ENGAGE IN learning activities for various reasons. Self-determination theory (SDT) examines different orientations of engaging in a task (i.e., what type of motivation; Deci & Ryan, 1985; Ryan & Deci, 2000). SDT researchers focus on how social and cultural factors facilitate or undermine people's sense of volition and initiative. Basic psychological needs such as autonomy, competence, and relatedness are considered as requirements for the healthy development and functioning of human beings. The satisfaction of these needs serves as the foundation in understanding what social and cultural factors affect human motivation and engagement in activities (Deci & Ryan, 2008). Early SDT research differentiated between intrinsic motivation and extrinsic motivation; later research refined extrinsic motivation to reflect different degrees of self-regulation and internalization of an action, and the key differentiation within SDT shifted to a focus on autonomous-versus-controlled motivation (Deci & Ryan,

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2008). More recently, goal contents (intrinsic vs. extrinsic), goal framing, and goal contexts have been studied and experimented within the framework of SDT as newer extensions (T. Kasser & Ryan, 1993, 1996; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; Vansteenkiste, Simons, Soenens, & Lens, 2004). Goal contents reflect the outcomes that people are pursuing, whether for autonomous or controlled reasons (T. Kasser & Ryan, 1996).

The original SDT and its earlier extensions have been studied across cultures (e.g., Levesque, Zuehlke, Stanek, & Ryan, 2004) and contextual settings such as physical education (e.g., Haerens, Kirk, Cardon, De Bourdeaudhuij, & Vansteenkiste, 2010; Standage, Duda, & Ntoumanis, 2005), religious activities (e.g., Neyrinck, Vansteenkiste, Lens, Duriez, & Hutsebaut, 2006), health and medicine (e.g., Halvari & Halvari, 2006) politics (e.g., Losier & Koestner, 1999) and organizations (e.g., Deci, Connell, & Ryan, 1989). However, to date, the more recent extensions of experimental SDT research have mostly been studied in developed countries and in individualistic cultures (e.g., Vansteenkiste, Simons, Soenens, et al., 2004). As the largest population in the world, the Chinese differ in many ways from populations in developed countries in regards to cultural values, educational systems, and interpersonal relationship norms. Therefore, it is necessary to test the applicability of the recent extensions of SDT to the Chinese population. In this paper, we designed studies to examine goal content and goal context effects among Chinese middle school students in mainland China. We believe that testing those effects in a different culture would contribute to the advancement and universality of SDT.

Goal Contents

People's goals vary. Research by Kasser and Ryan (1996) showed that people's long-term goals can be categorized as intrinsic or extrinsic. Intrinsic goals reflect people's inherent growth tendencies and yield an inward-oriented focus (e.g., self-development, health and physical fitness, community contribution, and affiliation), whereas extrinsic goals reflect people's desire to impress others by acquiring outward signs of worth (e.g., financial success, power, status, and physical attractiveness) and are characterized by an outward-oriented frame-of-reference for viewing the world (T. Kasser & Ryan, 1996; Vansteenkiste, Lens, & Deci, 2006; Williams, Hedberg, Cox, & Deci, 2000). As a subtheory of SDT, goal contents theory distinguishes those two types of goals and examines their effect on behaviors and well-being (T. Kasser, 2002; T. Kasser & Ryan, 1996; Vansteenkiste, Lens, & Deci, 2006). Extrinsic and intrinsic goals are thought to relate differently to basic need satisfaction and therefore produce different psychological outcomes (Grouzet et al., 2005; T. Kasser & Ryan, 1996; V. G. Kasser & Ryan, 1999; Kim, Kasser, & Lee, 2003; Ryan et al., 1999; Schmuck, Kasser, & Ryan, 2000). Along this line, correlational studies have found that the relative importance of extrinsic goals relates negatively to adjustment outcomes and the relative importance of intrinsic goals relates positively to adjustment outcomes (Duriez, Vansteenkiste, Soenens, & De Witte, 2007; T. Kasser & Ryan, 2001; Williams et al., 2000). This basic pattern is called goal content effect and has been found in different cultures, including the United States (T. Kasser & Ryan, 1996), Germany (Schmuck et al., 2000), Spain (Romero, Gómez-Fraguela, & Villar, 2011), Russia (Ryan et al., 1999), and South Korea (Kim et al., 2003).

While long-term goal contents may reflect what people value, they should not be interpreted as goal motives, i.e., either as autonomous motivation that is volitional or as controlled motivation that involves the experience of being pressured or coerced. Vansteenkiste, Lens, and Deci (2006) used an example to demonstrate the difference between those two concepts: ". . . students could

have an after-school job to earn money (extrinsic goal content) because they feel pressured by their parents (controlled motive) or because they value going to college and will need the money (autonomous motive)." Past research has shown that goal content and goal motives have unique effects on well-being and psychological adjustment (Sheldon, Ryan, Deci, & Kasser, 2004).

Nonetheless, short-term goals of students' learning activities may be manipulated and experimental manipulations represent the newer direction of goal contents theory research. Vansteenkiste and colleagues conducted such manipulations in order to induce different goal contents. Learning activities were framed by indicating their instrumentality for attaining future goals (intrinsic vs. extrinsic). It was found that goal contents could be manipulated to some extent and that manipulated goal contents affected behaviors and learning outcomes in much the same way that non-manipulated life goal contents affected well-being and adjustment outcomes (Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005; Vansteenkiste, Simons, Soenens et al., 2004). Although in general, people may establish relatively stable intrinsic or extrinsic goals, goal content manipulations/influences are not rare in daily life. For instance, teachers may orient students' attention towards external signs of success, such as being well-known and admired (i.e., status), or being wealthy and rich (i.e., financial success); alternatively, they may encourage their students to develop their talents and skills (i.e., self-development), or to help people in need (i.e., community contribution). Placing different emphasis on these goal contents may result in different short or long-term outcomes. Findings from past research suggest that intrinsic goals are more conducive to individual functioning and adjustment than extrinsic goals (see Gollwitzer & Moskowitz, 1996; Ryan, Sheldon, Kasser, & Deci, 1996; Vansteenkiste, Timmermans, Lens, Soenens, & Van den Broeck, 2008) and that extrinsic goal framing (manipulation) undermined learning and persistence, regardless of the initial value placed on extrinsic goals (Vansteenkiste, Duriez, Simons, & Soenens, 2006).

Goal Contexts

SDT is an organismic dialectical approach. It emphasizes the interactions between the active organism (the self) and the social context. SDT researchers have explored how social contexts can promote adjustment outcomes (e.g., Assor, Kaplan, & Roth, 2002; Deci, Eghrari, Patrick, & Leone, 1994; Deci & Ryan, 2000; Guay, Ratelle, & Chanal, 2008). Autonomy-supportive contexts tend to facilitate autonomous motivation, and controlling contexts tend to facilitate controlled motivation (Black & Deci, 2000; Sheldon & Krieger, 2007; Williams & Deci, 1996). SDT holds that, in contrast to controlling contexts, an autonomy-supportive environment is associated with more desirable effects (Assor, Roth, & Deci, 2004; Chirkov & Ryan, 2001; Grolnick, Kurowski, Dunlap, & Hevey, 2000; Grolnick & Pomerantz, 2009; Soenens & Vansteenkiste, 2005).

A goal can be introduced and communicated in either type of context. If short-term goal contents are manipulated in different learning contexts, we could test goal content effect, goal context effect, as well as any interaction between them. The effects of manipulating goal contents within autonomy-supportive or controlling learning contexts have been studied by Vansteenkiste and colleagues in Western culture (e.g., Vansteenkiste, Simons, Lens et al., 2004; Vansteenkiste, Simons et al., 2005). They found that when intrinsic goals were pursued in an autonomy-supportive context the outcomes were most conducive to psychological well-being and that even in a controlling context, intrinsic goals were associated with more positive outcomes than

extrinsic goals. To explain these findings, Vansteenkiste and colleagues argued that the autonomy-supportive context allowed people to experience the congruence of pursuing an intrinsic goal that was closely aligned with their basic psychological needs, whereas controlling contexts tended to thwart basic need satisfaction.

Self-Determination Theory in Chinese Culture

China has its own unique history and culture. The pursuit of fortune, political power, and high social status has been traditionally valued and set as the ultimate goal by Chinese scholars and intellectuals. In ancient times, particularly since the Tang Dynasty (circa 700 AD), scholarship attained by vast reading was deemed as the fairest and most efficient way to climb the social ladder. Those excelling in scholarship (and tested via official examinations) were respected by all, and often assigned government positions by the emperor. Once becoming a government official, as a result of the raised status, the scholar would have an official residence and a state-provided salary, along with other benefits (Su, 2002). Because of this, the primary goal of most ancient Chinese scholars was to obtain an official position. Even as a youngster, Chinese were taught that scholarship was superior to all the other types of work and was the surest route to a better personal life (Chen & Uttal, 1988).

In today's China, scholarship is not tied to securing a government job, but is still very highly valued as a way to reach success. Academic achievement and good performance on exams remain the primary path of upward mobility, partly because of urban-rural economic and developmental differences and migration control (Chen & Uttal, 1988). However, the emphasis on achievement as well as high standards imposed by Chinese parents may result in students' relying on extrinsic motivations such as grades to maintain their interest in school.

China's basic education is examination-oriented (Chen & Uttal, 1988). In terms of policies and educational practices in China, nine years of education (Grade 1 through Grade 9; elementary and middle school education) is mandated by law; however, students have to compete very hard to enter top high schools through "Zhongkao," the Senior Secondary Education Entrance Examination. Typical middle school classrooms in China have approximately 60 or more students. Teaching and learning is often done in groups but assessment is almost always based on individual performance. Teaching is usually teacher-centered with students following instructions and passively receiving information. The teaching styles are usually controlling, restrictive, and authoritarian (Chiu, 1986). High-stakes testing, high educational expectations from parents, traditional values, and teaching practices that make comparisons transparent (e.g., test scores or rankings public to all teachers and/or students) contribute to a competitive school environment in China, even in middle schools.

Cross-cultural research has suggested that Chinese students are different from their Western counterparts in terms of psychological constructs such as perceptions of competence, task orientation, anxiety about academics, attributions for failure and success, and human values (Chiu, 1986; Hardré et al., 2006; Hong, 2001; Schwartz & Bilsky, 1990; Stevenson, Chen, & Lee, 1993). It also has been shown that autonomy is less supported in Asian societies (Iyengar & Lepper, 1999; Jang, Reeve, Ryan, & Kim, 2009; Kitayama, Markus, & Kurokawa, 2000; Olsen et al., 2002; Quoss & Wen, 1995; Schwartz, 1992; Triandis, 2001). In Chinese culture, the support of autonomy is not a common socialization practice because of the prevailing Confucian values (e.g., filial piety, humaneness, and ritual). Instead, Chinese culture emphasizes conformity and family

interdependence (Bao & Lam, 2008; Chao & Tseng, 2002), and maintaining social harmony and family support is often seen as a lifelong obligation (Tseng, 2004). Thus, 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 adjustment outcomes of individuals in collectivistic societies (Iyengar & Lepper, 1999).

Nevertheless, several studies based on SDT have indicated that the East–West differences are not so dramatic in terms of the relationships between autonomy and academic or psychological outcomes (Pu, 2006; Vansteenkiste, Lens, Soenens, & Luyckx, 2006; Vansteenkiste, Zhou, Lens, & Soenens, 2005). For example, Vansteenkiste, Zhou, Lens, and Soenens (2005) found that autonomy was positively related to adaptive learning attitudes, academic success, and personal well-being among Chinese learners. They also argued that within the SDT framework autonomy should be defined in terms of individual, phenomenological experience, rather than in terms of interpersonal, culturally bounded values. Based on this argument, SDT researchers in cross-cultural studies should focus on relationships between, rather than the amounts of, psychological constructs and outcomes. So far, there has been no experimental research examining the goal content and goal context effects among students in China, and the research here filled this gap in the literature.

Present Research

Before this research, we conducted a survey study to identify the goal contents pursued by Chinese scholars. One hundred and three college students responded to the survey, and 75% of those students expressed learning goals as (a) being financially successful, (b) being rich, or (c) having many expensive possessions. We also surveyed 204 high school students and found that 81% of them had similar goals. From these surveys, we concluded that in general the learning goal contents of contemporary Chinese students are mostly extrinsic.

The present research included two experimental studies. In Study 1, we examined differences in learning outcomes when extrinsic or intrinsic goals were induced to Chinese middle school students. Because those two types of goals were thought to relate differently to basic need satisfaction and therefore produce different psychological outcomes, we hypothesized that Chinese students with extrinsic goals would report less positive and more negative learning outcomes than those with intrinsic goals. In Study 2, we examined differences in learning outcomes when extrinsic or intrinsic goals were induced to Chinese middle school students in an autonomy-supportive or controlling learning context. We hypothesized that the goal content variable would interact with the context variable such that the autonomy-supportive learning context would offset the negative effects of extrinsic goals and enhance positive effects of intrinsic goals.

Dependent variables in Studies 1 and 2 were test performance, free-choice engagement, and test anxiety. Following the positive psychological tradition, we chose test performance and free-choice engagement as dependent variables. Those two variables have been used in similar studies of different populations (e.g., Vansteenkiste, Simons, Lens, et al., 2004). More important, they are the key outcome variables in SDT. In addition, test anxiety was measured as an outcome variable because it, too, is a key factor in undermining student performance (Hembree, 1988). Moreover, it is common across a broad spectrum of educational settings (Griffin & Griffin, 1998).

STUDY 1

METHOD

Pilot Study

Before Study 1, we conducted a pilot study to check the manipulation of goal contents with 133 middle school students from the same city as in Studies 1 and 2. This pilot study was carried out in a similar procedure as used in Pilot Study 1 of Vansteenkiste, Simons, Lens, Sheldon, and Deci (2004). After random assignment, 66 participants were in the intrinsic goal condition and 68 were in the extrinsic goal condition. They received the same instruction sheet in each condition as in Study 1 and read the same text as in Study 1 on improving creativity. All participants answered questions concerning the importance of intrinsic goals (three items on a 5-point Likert scale) and the importance of extrinsic goals (another three items on a 5-point Likert scale) of improving creativity. On the importance of intrinsic goals, the mean was 10.80 ($SD = 2.58$) and 8.94 ($SD = 2.38$) for those in the intrinsic goal condition and the extrinsic goal condition, respectively. The effect size (Cohen's d) was 0.75 (close to large effect). On the importance of extrinsic goals, the mean was 7.42 ($SD = 2.30$) and 8.37 ($SD = 2.35$) for those in the intrinsic goal condition and the extrinsic goal condition, respectively. The effect size (Cohen's d) was 0.41 (close to medium effect). The differences between students in the two goal conditions suggested effective goal content manipulation.

Participants

Participants were 188 middle school students from a city in central China. This city is a traditional agricultural economic zone where people's average social and economic status is at the middle level within China. In addition, this city has a long history of attaching high importance to education. As in most other Chinese middle schools, teaching in sampled schools is structured and teacher-centered. Students spend the majority of their day and evening time on in-class learning. Of those 188 participants in this study, 88 (47%) were female, and 100 (53%) were male. The mean age of the participants was 14.88 years ($SD = 0.71$).

Procedure

The experiment took place during regular classes and students learned text materials about improving creativity as a class activity. We chose the topic of improving creativity because there was a nationwide initiative of quality education when the present study was conducted and cultivating creativity was considered part of this initiative. The teachers were contacted and agreed to participate without knowing anything about what was being examined until the study was completed. The teachers distributed written instructions (in Chinese) to students explaining their task.

There were two types of instruction sheets put in rotation in the same stack for the different manipulations. Those instruction sheets were handed out to students one by one, following the seating in each class to ensure randomization of the experimental manipulations. There were 95 participants in the intrinsic goal condition and 93 in the extrinsic goal condition. All instruction

sheets were of similar length and looked similar with different content to ensure fidelity of the experiment. After receiving the instruction sheets, students were told to read them without any discussion. Students then engaged in the target activity of reading a text about improving creativity.

Next, each student was asked to write his or her name on the instruction sheet and then to turn it in at the end of the sessions (along with other materials subsequently explained). The instruction for the intrinsic goal condition read: "Learning how to improve creativity is very important. Reading the text about it will help you to know better about yourself and your potentials and hence contribute to your personal development." The instruction for the extrinsic goal condition included: "Learning how to improve creativity is very important. Reading the text about it will help you to make more money and to buy things you want through applying your knowledge."

After reading the text, students answered questions about their comprehension of it and completed the test anxiety inventory. Subsequently, students were told that there were additional exercise materials about improving creativity that they could practice if they chose to. Last, 1 week later, these exercise materials were collected and graded by their teachers.

Measures

Test performance

Students' test performance was measured by eight questions following their reading the text on improving creativity. The first question was a multiple-choice item worth 10 points, and the next seven questions were short essay questions with the first five worth 10 points each and the last two 20 points each. The total possible score was 100 points (we used this scale because it is the most commonly used and familiar scale for classroom testing at schools in mainland China; we also would like to point out that there is little standardized testing in mainland China). Two teachers graded all eight questions. They were given the highest possible score for each question and sample answers for three or four scores were provided for each essay question. However, specific coding criteria were not provided for every possible score. Test items focused on conceptual rather than rote learning and those questions were similar to typical Chinese reading comprehension questions asked during a Chinese test of middle school students. An example essay question was "What does the author try to tell us by using the example of Alfred Nobel in the sixth paragraph?" The total possible score of this question was 10 points. A two-point sample answer was "The author tries to tell us that Alfred Nobel had a notebook." A six-point sample answer was "The author tries to tell us that Alfred Nobel had the habit of writing down spontaneous ideas in a notebook." A 10-point sample answer was "By using the example of Alfred Nobel, the author tries to tell us that it is important to keep track of spontaneous ideas by writing them down and that we can cultivate creativity this way." The two teachers grading test items were blind to students' conditions and did not know about the study design or purpose. The correlation between the two teachers' ratings was .92. Their ratings were averaged to form a performance score for each student.

Free-choice engagement

Students were offered additional exercise materials about improving creativity. There were seven problems in the exercise materials. Four of them asked students to describe or to summarize

an invention or discovery, and the other three problems asked them to think creatively to provide an answer. An example exercise problem asked students to think creatively about possible uses of a building brick. Students were asked to record time spent on each problem and were given 1 week to choose to work on those exercise materials. Two teachers rated students' responses to each question on a 0–2 scale with possible scores of 0, 0.5, 1.0, 1.5, and 2.0. A score of 0 was given if the student spent very little time (less than 10 min) or did not write any meaningful sentences. A score of 0.5 was given if the student spent some time (30 min to 2 hr) and provided answers in the most usual way (e.g., writing about how building bricks could be used to build apartments). A score of 1.0 was given if the student spent some time (30 min to 2 hr) and provided more answers involving some creative thinking (e.g., writing about how uses of building bricks could be categorized based on the purposes of the buildings/projects). A score of 1.5 was given if the student spent more than 2 hr and provided unusual but sensible answers involving some creative thinking (e.g., writing about how different attributes of building bricks such as weight, shape, and price should be considered when choosing building bricks). A score of 2.0 was given if the student spent more than 2 hr and provided answers that reflected "thinking outside of the box" (e.g., anthropomorphizing a building brick and having it go on travels to find the meaning of its life). The free-choice engagement score was the total score on the seven exercises. The correlation between the two teachers' ratings was high ($r = .91$). The final score was the average of teachers' ratings.

Test anxiety

We used the Test Anxiety Inventory to measure participants' test anxiety. The inventory was developed by Spielberger (1980) and was later translated into Chinese by Ye and Rocklin (1988). The Chinese version that was used in this study has been shown to have good reliability (Cronbach's $\alpha = 0.88$) and to be applicable to Chinese students (Ling & Fan, 2008). In this study, students responded to 20 items on a 4-point scale about how much they experienced specific symptoms of anxiety during the test following the reading. The total score was used to measure test anxiety. Cronbach's α of this measure was 0.87 in this study.

RESULTS

Previous experimental goal content studies did not examine gender differences, either because only one gender group participated (e.g., Vansteenkiste, Simons, Lens, et al., 2004) or because of reasons unexplained (e.g., Sebire, Standage, & Vansteenkiste, 2009). We included gender as an independent variable to see whether it was a significant predictor. Adjusted variable means and associated standard errors of scores for intrinsic and extrinsic goal conditions were calculated for the two gender groups separately (see Table 1). For the free-choice engagement measure, it turned out that the majority of the participants (90%) responded to only one exercise problem. One reason may be that each of these exercises required a longer time to finish than those for the test performance measure (the requirement of each exercise was to write an essay of approximately 200 Chinese characters), and it was unlikely for students to complete all the questions within 1 week (group-learning consumed most of the time in class and there was little free time after class).

To test whether there were significant differences between the intrinsic and extrinsic goal conditions and between gender groups on test performance, free-choice engagement and test

TABLE 1
Adjusted Means and Standard Errors of Scores for Intrinsic and Extrinsic Goal Conditions ($N = 188$)

Goal	Test performance		Free-choice engagement		Test anxiety	
	M	SE	M	SE	M	SE
Intrinsic goal						
Female	45.43	2.25	0.75	0.07	32.89	1.28
Male	46.69	2.23	0.59	0.07	34.73	1.26
Extrinsic goal						
Female	37.81	2.41	0.32	0.07	38.54	1.37
Male	36.50	2.14	0.51	0.07	40.48	1.21

anxiety, we conducted a multivariate analysis of variance using a 2 (goal condition) × 2 (gender) design with the three outcome variables as dependent variables. By Wilks' criterion, the combined dependent variables were significantly different by goal condition, $F(3, 182) = 17.96$, $p < .001$, $\eta_p^2 = .228$ (close to large effect), but not by gender, $F(3, 182) = .76$, $p = .54$, or by the interaction between goal condition and gender, $F(3, 182) = 2.20$, $p = .09$.

The main effects of goal condition on each of the dependent variables suggested that students framed in the intrinsic goal condition had better test performance, $F(1, 184) = 15.56$, $p < .001$, $\eta_p^2 = .08$, higher free-choice engagement, $F(1, 184) = 14.64$, $p < .001$, $\eta_p^2 = .07$, and less test anxiety, $F(1, 184) = 19.79$, $p < .001$, $\eta_p^2 = .09$. All those effects were medium or close to medium (Cohen, 1988).

DISCUSSION

Study 1 provided initial support of goal content effects among Chinese middle school students on three learning-related outcomes: test performance, free-choice engagement, and test anxiety. According to SDT, learning environments that emphasize intrinsic (or extrinsic) goal contents may have similar functional effects on learning and achievement as individuals' relatively stable pursuit of intrinsic (or extrinsic) goals. Vansteenkiste and colleagues have demonstrated effects of manipulated goal contents on deep processing of learning materials, academic achievement, and persistence among students and adults in Western culture (e.g., Vansteenkiste, Simons, Lens, et al., 2004). This study extended the research and has found that goal content (through experimental manipulations) matters among Chinese middle school students as well.

STUDY 2

METHOD

Participants

A total of 395 middle school students from the same city in China as in Study 1 participated in this study as a regular class activity. One hundred and ninety participants (48%) were female, and 205 (52%) were male. The mean age of the participants was 14.46 years ($SD = 1.11$).

Procedure

Participants' teachers were first contacted and agreed to participate without knowing what the study was about until the study was completed. The teachers distributed written instructions (in Chinese) to their students prepared by the researchers.

There were four types of instruction sheets that were randomly distributed within each class (cell sizes ranged from 96 to 100). The four types of instruction sheets represent the four manipulation conditions: intrinsic goal in an autonomy-supportive learning context, extrinsic goal in an autonomy-supportive learning context, intrinsic goal in a controlling learning context, and extrinsic goal in a controlling learning context. The students and their teachers were not aware that there were different sets of instructions, and all instruction sheets were of similar length and looked similar with different content to ensure fidelity of the experiment. After reading their instructions, students were then engaged in a target activity of reading a text about improving creativity. Each student was asked to write his or her name on the instruction sheet and to turn it in at the end of the sessions (along with other materials explained below). As in Study 1, instructions for participants in the intrinsic goal conditions stated that "Learning how to improve creativity is very important. Reading the text about it will help you to know better about yourself and your potentials and hence contribute to your personal development." The instruction for the extrinsic goal conditions included "Learning how to improve creativity is very important. Reading the text about it will help you to make more money and to buy things you want through applying your knowledge." The learning context was also manipulated. Specifically, in the autonomy supportive conditions, the instructions included "If you are interested, you may want to learn more about it. The following text provides information on this topic. You can decide to learn more about creativity enhancing strategies." In the controlling conditions, the instructions included "You must learn more about it. You do not have a choice. If you do not finish this required learning task, you will hardly graduate." The experiment had four conditions through manipulation of two factors: goal content and goal context.

After reading the text, students answered the same reading comprehension questions and completed the same Test Anxiety Inventory as in Study 1. They were also told that there were additional exercises about improving creativity that they could practice if they chose. Those exercises were the same as in Study 1. One week later, exercise books were collected and graded by their teachers in the same way as in Study 1.

Measures

Test performance, free-choice engagement, and test anxiety were measured the same way as in Study 1. In this study, the interrater reliability was .94 and .90 for test performance and free-choice engagement, respectively. Cronbach's α for the test anxiety measure in this study was 0.83.

RESULTS

The adjusted means and standard errors of the three outcome variables for each condition are presented in Table 2. We conducted a multivariate analysis of variance to study how goal content and goal context may affect students' test performance, free-choice engagement, and test anxiety.

TABLE 2
Adjusted Means and Standard Errors of Scores for Intrinsic and Extrinsic Goal Conditions, by Learning
Context ($N = 395$)

Goal condition	Test performance		Free-choice engagement		Test anxiety	
	M	SE	M	SE	M	SE
Autonomy-supportive context						
Intrinsic goal	44.36[ad]	1.23	0.67[be]	0.06	34.68[cf]	0.88
Extrinsic goal	35.84[ag]	1.25	0.28[bh]	0.06	40.44[c]	0.89
Controlling context						
Intrinsic goal	25.80[d]	1.23	0.48[e]	0.06	41.42[f]	0.87
Extrinsic goal	24.14[g]	1.23	0.51[h]	0.06	42.45	0.87

Note. Means with same-letter superscripts are statistically significant at the .05 level.

Because in this study, male and female students did not differ significantly on any of the three outcomes, and the gender variable or its interaction with the other independent variables was not statistically significant in the multivariate analysis of variance, gender was dropped from the analysis. Therefore, the final multivariate analysis of variance was a 2 (goal content) × 2 (goal context) design with test performance, free-choice engagement, and test anxiety as the dependent variables.

With the use of Wilks' criterion, the combined dependent variables were significantly different by goal content, $F(3, 389) = 14.04$, $p < .001$, $\eta_p^2 = .10$ (medium effect), goal context, $F(3, 389) = 58.66$, $p < .001$, $\eta_p^2 = .31$ (large effect), as well as the interaction between goal content and goal context, $F(3, 389) = 9.21$, $p < .001$, $\eta_p^2 = .07$ (close to medium effect).

The main effects of goal content indicated that students in the intrinsic goal condition had better test performance, $F(1, 391) = 17.00$, $p < .001$, $\eta_p^2 = .04$ (small effect), higher free-choice engagement, $F(1, 391) = 8.33$, $p = .004$, $\eta_p^2 = .02$ (small effect), and less text anxiety, $F(1, 391) = 14.91$, $p < .001$, $\eta_p^2 = .04$ (small effect) than those in the extrinsic goal condition, averaging across the two types of goal contexts. The main effects of goal context indicated that students in the autonomy-supporting learning context had better test performance, $F(1, 391) = 150.31$, $p < .001$, $\eta_p^2 = .28$ (large effect), and less test anxiety, $F(1, 391) = 24.79$, $p < .001$, $\eta_p^2 = .06$ (small to medium effect), but did not differ in free-choice engagement than those in the controlling learning context, averaging across the two types of goal contents. The interaction between goal content and goal context was statistically significant for all three outcome variables: test performance, $F(1, 391) = 7.72$, $p = .006$, $\eta_p^2 = .02$ (small effect), free-choice engagement, $F(1, 391) = 11.28$, $p = .001$, $\eta_p^2 = .03$ (small effect), and test anxiety, $F(1, 391) = 7.24$, $p = .007$, $\eta_p^2 = .02$ (small effect).

Simple effects of goal content suggested that goal induction made a difference in the autonomy-supportive learning context, but not in the controlling learning context. In an autonomy-supportive learning context, students in the intrinsic goal condition had better test performance, higher free-choice engagement, and less test anxiety (see Table 2). Simple effects of goal context revealed that the autonomy-supportive learning context produced better test performance, higher free-choice engagement, and less test anxiety than the controlling learning context in the intrinsic goal

conditions. In the extrinsic goal conditions, students in the autonomy-supportive learning context had better test performance than those in the controlling learning context. The goal context did not make a difference on test anxiety for those in the extrinsic goal conditions. In addition, the autonomy-supportive learning context was associated with lower free-choice engagement than the controlling learning context in the extrinsic goal conditions.

DISCUSSION

Study 2 was designed to extend the findings of Study 1 and to examine whether goal content manipulations would work differently in an autonomy-supportive learning context versus a controlling learning context. In the autonomy-supportive learning context, similar goal content effects were observed as in Study 1. However, in the controlling learning context, goal content effects were not statistically significant on the three outcome variables. It is worth nothing that the most positive outcomes were obtained when the task was associated with intrinsic goal induction and was introduced in an autonomy-supportive context. This suggests that intrinsic goals were more fully engaged and accepted by individuals when they were encountered in an autonomy-supportive climate. This finding is consistent with findings in Western culture (Vansteenkiste, Simons, Lens, et al., 2004).

In the extrinsic goal conditions, the autonomy-supportive learning context resulted in better test performance than the controlling context; however the learning context did not make a statistically significant difference on test anxiety. It is surprising that the autonomy-supportive/extrinsic-goal combination resulted in lower free-choice engagement than the controlling/extrinsic-goal condition. This finding of negative effect of autonomy-supportive context in the extrinsic-goal condition did not appear in experimental research among Western samples and was possibly a cross-culture difference. This inconsistency may be the result of various components of psychological control, such as love withdrawal (Ho, 1986), shaming procedures, and threats of abandonment (Wu et al., 2002), which are more frequent in Eastern societies, and the fact that those components are better accepted as a means of regulating Chinese adolescents' behaviors (Chao, 1994; Chao & Tseng, 2002; Olsen et al., 2002). As a consequence, once the application of these controlling strategies disappears, the behaviors may likely withdraw. It is also worth noting that although in the extrinsic goal conditions, free-choice engagement was greater in the controlling context than in the autonomy-supportive context, the greatest free-choice engagement was related to the combination of an intrinsic goal induced in an autonomy-supportive context.

Conclusions and Limitations

This was the first experimental research of goal content and goal context effects with samples of Chinese middle school students. The present research included two studies. In Study 1, we aimed to examine the effects of manipulating goal contents on learning outcomes and hypothesized that Chinese students with extrinsic goals would report less positive and more negative learning outcomes than those with intrinsic goals. In Study 2, we aimed to examine the effects of goal content manipulations in two learning contexts and hypothesized that the goal content variable would interact with the context variable such that the autonomy-supportive learning context would offset the negative effects of extrinsic goals and enhance positive effects of intrinsic goals.

The two studies provided evidence for our primary hypotheses and study results are generally in line with SDT and goal contents theory (Deci & Ryan, 2008; Vansteenkiste, Lens, & Deci, 2006). Framing a learning activity in terms of an intrinsic or extrinsic goal attainment resulted in different short-term outcomes. Intrinsic goals were more conducive than extrinsic goals on test performance, free-choice engagement, and test anxiety. Future research is needed to investigate whether similar results would be found in different samples, such as those in different regions of China and whether interventions focused on intrinsic goal contents would generate long-term positive outcomes. We have also found that goal contexts and goal contents interacted with each other such that the negative effect of extrinsic goals could be offset in an autonomy-supportive environment for academic outcomes such as test performance and that the positive effect of intrinsic goals was enhanced in an autonomy-supportive learning environment.

From Study 2, the most positive outcomes were produced in the intrinsic goal/autonomy-supportive condition. However, the controlling context seemed to facilitate free-choice engagement when an extrinsic goal was induced. This may be a cross-cultural difference and further research is needed to examine whether it would be replicated. The controlling context in this study likely made the extrinsic goal contents more salient by stating a consequence for not completing the reading task ("you will hardly graduate"). Under this condition, students might have felt pressure to do whatever they could to alleviate the possibility of the negative consequence. The controlling context may have had a carryover effect on free-choice engagement. The controlling context might also have been unclear, confusing, or unbelievable to students, resulting in ineffective manipulation (unlike in Study 1, there was no pilot study in Study 2 to check goal context manipulation). In the current two studies, the manipulated goal contents might also have served as short-term standards for success that students internalized. In Study 2, when students were offered choice after the controlling context was removed, they probably felt a sense of autonomy and the higher free-choice engagement might be a rebound.

Chinese culture values help to ensure that children will work diligently, and Chinese philosophy has traditionally emphasized malleability and the importance of the environment in the shaping and expression of human potential (Chen & Uttal, 1988). From this perspective, Chinese students are more likely to be cultivated to carry the incremental view of intelligence (Dweck, 1999) and more likely to hold approach-orientated goals (Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001). However, goal orientations are different from goal contents. Goal contents reflect the outcomes that people pursue (Deci & Ryan, 2008), whereas goal orientations focus on the purpose—why an individual engages in certain behaviors (Kaplan, Middleton, Urdan, & Midgley, 2002). While goal contents could be manipulated as demonstrated in this and past research, studies on achievement goal theory tend to treat goal orientations as attribute-like characteristics.

As a subtheory of SDT, goal contents theory grows out of the distinctions between intrinsic and extrinsic goals and their effect on motivation and wellness. However, the distinctions between intrinsic and extrinsic goals should not be confused with the distinctions between intrinsic and extrinsic motivation, or with the distinctions between autonomous and controlled motivation. Past research has suggested that what goals people pursue (extrinsic goal contents vs. intrinsic goal contents) and why people pursue them (autonomous vs. controlled motivation) have independent contributions to psychological well-being (Sheldon et al., 2004).

There are several limitations of the present research. First, although we used different reading instructions to induce intrinsic or extrinsic goals, students were different in their long-term learning goals. Although our pilot survey study suggested that the majority of Chinese students

(in middle schools and in college) had extrinsic life goals, goal induction/framing may work differently for people with intrinsic life goals. Despite studies supporting SDT and showing that promoting extrinsic goals undermines learning regardless of whether the individuals are extrinsically or intrinsically oriented, there is a hypothesis that suggests induced goal contents would yield better learning outcomes when they are consistent with individuals' more stable life goal orientations (Hidi & Harackiewicz, 2000; Sagiv & Schwartz, 2000).

Second, the manipulations of experimental conditions were limited. In both studies, we used altered wording on a set of instructions. The goal content manipulations seemed effective from the pilot study of Study 1. However, we did not check the effectiveness of manipulating goal contexts. In Study 2, the controlling context was framed by including in the instruction "You must learn more about it. You do not have a choice. If you do not finish this required learning task, you will hardly graduate." While using the phrases "must" and "have to" might have resulted in reduced sense of autonomy, the possible consequence (you will hardly graduate" might have been confusing or unbelievable to students. In addition, although significant results were observed, we do not believe that our manipulations would have long-term effects. For example, the controlling or autonomy-supportive context in Study 2 would likely wane and the general learning context in the classroom would resume.

Third, as a result of limited resources, our samples were from only one city in central China and the participants were all in junior high schools in the year before graduation. Chinese students are usually under great academic pressure during this last year of junior high school. The results may be not generalizable to the larger population of Chinese students.

Fourth, we did not explore the mechanism of goal content and goal context effects. According to SDT, basic psychological needs may be used to explain goal context effects (Deci & Ryan, 2000). Past mediational analyses have found that autonomous motivation mediated goal content and social context effects on learning-related outcomes (Vansteenkiste, Lens, & Deci, 2006; Vansteenkiste, Simons, Lens, et al., 2004). Sheldon, Ryan, Deci, and Kasser (2004) claimed that the negative effects of extrinsic goals could be attributable to personality traits such as high insecurity, low self-esteem, or low cooperation. Vansteenkiste, Neyrionck, Niemiec, Soenens, Witte, and Brock (2007) suspected that traits such as neuroticism could also explain goal content effects.

In sum, we have examined goal content and goal context effects among samples of Chinese middle school students, using experimental studies. Our findings indicate that goal content matters, particularly in autonomy-supportive learning contexts, and that goal context matters, particularly with intrinsic goal contents. These findings may provide some implications for creating optimal learning environments in Chinese middle schools.

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