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When Academic Achievement Is an Obligation: Perspectives From Social-Oriented Achievement Motivation

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Abstract

Asian students on average not only performed better than other ethnic groups as documented in multinational achievement tests, but also in general showed more negative emotions and test anxiety. We argued that this seemingly paradoxical achievement pattern was rooted in the endorsement of social-oriented achievement motivation (SOAM) among Asian students. Within SOAM, academic achievement is construed as an obligation to parents and significant others. This research tested if Chinese students endorsing SOAM would indeed show goal endorsement, emotions, and behavioral tendency that typify obligatory endeavors in academic settings. First, endorsing SOAM indeed was associated with viewing academic achievement as indicative of a person's obligation (Study 1); the stronger the individuals held this link, the more they felt guilty and a failure when they met with academic setbacks (Study 2); endorsing SOAM was associated with experiencing anxiety in taking examination (test anxiety; Studies 4 and 5) and feeling agitated (guilt, shame, and anxiety) in the face of setbacks (Studies 3 and 4), and associated with performance (demonstration and avoidance) goals (Studies 3, 4, and 5), achieving and surface approaches to learning (Studies 4 and 5). Finally, in comparison with those endorsing low SOAM, students endorsing high SOAM indeed spent more time and effort in studying and were also more likely to endorse performance demonstration goals and achieving approach to learning, and as a result achieved better actual examination performance (Study 5). These findings suggest that SOAM sets up a meaning system within which academic achievement is construed as an obligation.

Keywords

culture and achievement motivation, achievement goals, parental expectations, intrinsic and extrinsic motivations, Chinese students

Many researchers have started to acknowledge that the individualist paradigm based on the Western conventional wisdom about intrinsic motivation may be limited in explaining all

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motivation systems across cultures (Elliot, Chirkov, Kim, & Sheldon, 2001; Hernandez & Iyengar, 2001; Lepper, Corpus, & Iyengar, 2005; Lepper & Henderlong, 2000). For example, a study by S. S. Iyengar and Lepper (1999) showed that Asian Americans displayed higher motivation in tasks chosen by significant others than in those chosen by themselves. Although these findings challenge the classical assumptions regarding human motivation and call for a reconsideration of normative beliefs about free choice and intrinsic motivation, there are still a dearth of research that examines the meaning of achievement among individuals who value fulfillment of parental and significant others' expectations. To the extent that parents and teachers value high academic achievement and fulfilling parental and significant others' expectations are seen as a social obligation in a culture, achievement endeavors are not only a means to learn new skills, actualize talents, or attain personal aspirations. Academic achievement can be an *obligatory endeavor*. As there is no research to our knowledge that addresses this idea, we conducted the present research to fill this gap.

The Paradoxical Phenomenon

Superiority in academic attainment among Chinese and Asian American children is consistently found in spite of their lower subjective well-being and self-perceived competence than that of their American and non–Asian American counterparts (Eaton & Dembo, 1997; Harter, 1982; Lee, Uttal, & Chen, 1995; Oishi & Sullivan, 2005; Stevenson & Stigler, 1992; Whang & Hancock, 1994). Taken as a whole, the achievement patterns of Asian students seem paradoxical—Asian students show superior academic achievement through hard work but are also often dissatisfied with their results and show high anxiety in academic settings. In the present study, we focused on studying Chinese students' performance patterns. We argue that academic achievement is an obligation for Chinese students, which would shed light on our understanding of some of the seemingly contradictory achievement patterns found among Asian students.

Different Meanings of Achievement and Achievement Patterns

As suggested by Tao and Hong (2000), academic achievement may take on different meanings depending on the sociocultural contexts of different societies. In Western culture, academic achievement is largely seen as an individual endeavor. People are encouraged to formulate goals that focus on their own needs, interests, and preferences. In Chinese culture, by striking contrast, academic achievement is seen as a social endeavor. Individual academic achievement is not only a person's own quest for knowledge, but also a means to bring wealth, power, fame, and honor to the family. From this perspective, an individual's achievement goals may be subsidiary to those of the collective. To fulfill the expectations of these social groups, individuals not only have to learn new skills but are also obliged to demonstrate these new skills publicly to gain social approval. Therefore, learning and getting high grades in examinations are two goals that go hand in hand in Chinese culture, thereby giving rise to the commonly found positive correlations between learning and performance goals (Chang & Beevi, 1999; Ho & Hau, 2008; Ng, 2000; Salili, Chiu, & Lai, 2001; Tao & Hong, 2000).

The Theoretical Framework of the Present Study

To the extent that academic achievement in Chinese culture poses a strikingly different meaning from that in Western culture, studying academic achievement in Chinese culture would shed light on the aspects of human motivation system that may have been overlooked previously from the Western perspective. To this end, we endorse a dynamic constructivist approach (Hong, 2009; Hong & Chiu, 2001; Hong, Morris, Chiu, & Benet-Martinez, 2000) in our

empirical investigation—that is, rather than embarking on a cross-cultural comparison, we sought to identify the key cultural ingredients at an individual level and delineate these ingredients' internal connections that give rise to the distinct pattern of responding. This approach arguably is more sensitive and precise in unraveling the cultural nuances (cf. Matsumoto & Yoo, 2006), and lays the foundation of the research strategy in the present study. We will return to this point in the research overview below.

The first thing in order is to identify the key cultural ingredients at an individual level. We borrow the conceptions of Social-Oriented Achievement Motivation (SOAM) and Individual-Oriented Achievement Motivation (IOAM) from Yang and Yu (Yang, 1982; Yang & Yu, 1988; A. B. Yu, 1996; A. B. Yu & Yang, 1987, 1994) and argue that they represent two distinct achievement orientations at an individual level that are reminiscent of the East versus West cultural differences. In five studies, we tested predictions of how these achievement orientations may be related to conceiving academic achievement as an obligation, its consequence on emotional responses when facing academic setbacks, achievement goal endorsements, approaches to learning, effort expenditure, and actual academic performance. We flesh out our predictions below.

SOAM Versus IOAM

Yang and Yu (Yang, 1982; Yang & Yu, 1988; A. B. Yu, 1996; A. B. Yu & Yang, 1987, 1994) were pioneers in raising the need to distinguish SOAM from IOAM. They define SOAM as being associated with the following five characteristics: (a) pursuit of achievement goals and standards of excellence set by significant others, social groups, or the society as a whole; (b) actions and means for pursuing goals and attaining standards are selected and determined by significant others, social groups or society as a whole; (c) outcomes are evaluated in terms of whether they match goals and standards of excellence set by significant others, social groups, or society as a whole; (d) positive or negative reinforcement is given by significant others in terms of praise or blame, acceptance or rejection, and promotion or demotion; and (e) the SOAM motivational dynamic reflects high social instrumentality and weak functional autonomy. In short, SOAM is defined as a motivational system that is fueled by a desire to gain social approval and to bring honor to one's family.

By contrast, IOAM is associated with the following five distinct characteristics: (a) pursuit of achievement goals and standards of excellence set by individuals, (b) actions and means of pursuing goals and attaining standards are selected and determined by individuals, (c) outcomes are evaluated in terms of whether they match the goals and standards set by individuals, (d) positive or negative reinforcement by individuals is based on outcome evaluation, and (e) the IOAM motivational dynamic reflects high self-instrumentality. In short, IOAM is defined as a motivational system that is fueled by a desire to attain one's own aspirations and to fulfill one's talents.

It is important to focus on one culture at a time to fully explicate the ramifications of SOAM and IOAM. This is theoretically important as although these two orientations are driven by two different desirable end-states, they are not necessarily in conflict with each other; an individual could aim at attaining both end-states in their achievement endeavors. In fact, the Chinese socialization process often emphasizes on internalizing parental expectations as one's own aspirations (Chao, 1994, 1996), thereby possibly fostering the endorsement of SOAM and IOAM at the same time. Cultural nuances as such require an in-depth and focused investigation and thus we have limited our scope to examining Chinese students' achievement pattern in the present research. Figure 1 summarizes how SOAM may be linked to distinctive patterns of cognition, affect, and behaviors in achievement settings.

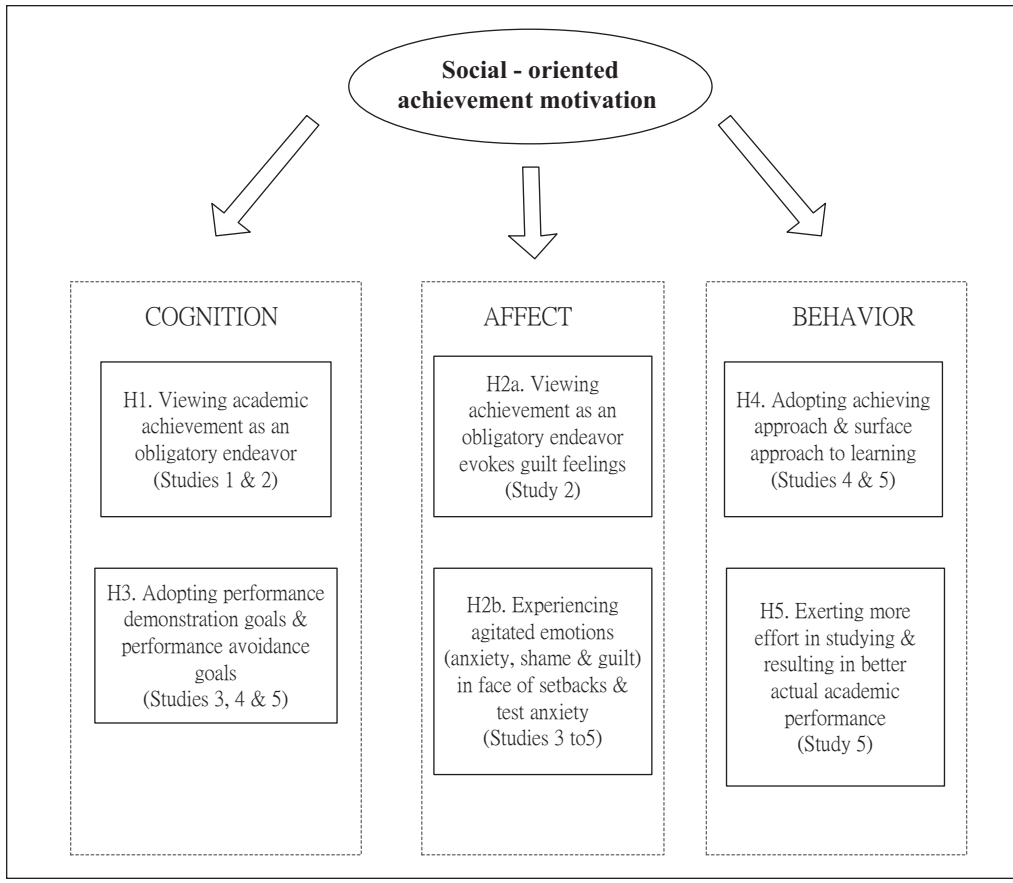

Figure 1. The proposed SOAM model.
Note: SOAM = social-oriented achievement motivation. H1 to H5 denote Hypotheses 1 to 5.

Academic Achievement As an Obligatory Endeavor

There are three major reasons that render academic achievement as an obligation in Chinese culture. First, Shek and Chan (1999) found Hong Kong Chinese parents ranked filial piety and achievement in education as the first and second most important attributes of an ideal child. Parents understood achievement in education to include getting good grades, having a positive attitude toward study (such as being diligent and responsible in studying), and attaining a high level of education. Asian conception of healthy child development tends to involve how well children meet these obligations (Stevenson & Stigler, 1992). Making the best attempt to study and do well in school are a child's primary responsibilities to fulfill parental expectations. This is consistent with Chinese people's tendency to make moral judgments based on how well individuals fulfill the expected duties or social obligations (duty-based moral judgment), which is different from the rights-based moral judgment in Western culture that focuses on individual's intentionality in doing harms (cf. Chiu, Dweck, Tong, & Fu, 1997). E. S. H. Yu (1974) also found that strength of achievement motivation among Chinese was positively correlated with filial piety, a virtuous and moral characteristic valued by Chinese. Salili (1994, 1995) also posited that academic excellence is often motivated by filial piety. Therefore, we predicted that to students who endorse SOAM highly, academic achievement may be one of the social obligations they need to fulfill to repay their parents' efforts in raising them. For them, academic achievement is likely to be viewed as an obligatory endeavor.

Second, Chinese Confucian teaching advocates the malleability in all domains of oneself including ability (Chao, 1996; Chen & Uttal, 1988), which is similar to the incremental view of intelligence conceptually (Dweck, 2000). To the extent that the ability is malleable, discipline and persistence in one's study are highly valued (Bempechat & Drago-Severson, 1999). Chinese teachers and parents believe that ability can be acquired by paying more effort, and thus failing students should be blamed for their own laziness and irresponsibility (Stevenson et al., 1990). In schools in Hong Kong, it was common to encourage and require low achieving students to do more assignments and take extra classes after school to compensate for their ineptitude (Hong, 2001). In fact, according to Confucian teaching, studying hard with persistent effort itself is a valuable way to cultivate moral characters (Mizokawa & Ryckman, 1990).

Third, according to attribution theory, when achievement outcomes are attributed to internal and controllable factors such as effort, achievement has moral implications (Hamilton, Blumenfeld, Akoh, & Miura, 1990; Weiner, 1993, 1994). Specifically, failing in an achievement task is immoral if the lack of effort is seen as the cause of failure because effort is subject to an actor's volitional alteration and thus the actor should bear responsibility for not exerting enough effort. Likewise, Sabini and Monterosso (2003) also suggested that a person's will plays a central role in morality, such that working hard in preparing for examinations demonstrates that one's will is properly oriented and morally correct.

In sum, academic achievement is a way to meet filial obligations and to cultivate moral character according to Confucian teaching; the achievement outcomes are often attributed to the students' own volition (effort), and thus reflect on the students' moral character. All these factors corroborate to support our prediction that academic achievement is an obligatory endeavor (Hypothesis 1).

Emotional Ramifications

According to Higgins (1987), a discrepancy between the actual self (i.e., characteristics of the self in reality) and the ought self (i.e., characteristics of the self that significant others think one should attain) would evoke agitated emotions, including anxiety, shame, and guilt. By the same token, when actual academic performance or outcomes do not live up to what is expected or required by the significant others, students endorsing SOAM may experience actual-ought self-discrepancy and thus feel (a) anxious because they could be reprimanded by significant others or lose their approval (Hong & Lam, 1992), (b) shameful because they believe their inadequacy may cause their significant others to lose face (Higgins, 1987; Tompkins, 1984), or (c) guilty because they have not worked hard to fulfill obligations (Weiner, Russell, & Lerman, 1979). Therefore, the stronger the participants view achievement as an obligation, the stronger they should feel guilty and a failure in examinations (Hypothesis 2a). In general, when students who endorse SOAM encounter academic setbacks, they would feel that they have failed to fulfill their obligations ("oughts") and thus experience agitated emotions (anxiety, shame, and guilt; Hypothesis 2b). This may also manifest in having a high-test anxiety in general.

Furthermore, to avoid the feeling of shame and guilt, students with high SOAM may be motivated to work extra hard and persist even after numerous failures. As such, contrary to the negative view of shame and guilt in the West, these emotions may motivate greater effort expenditure, which in turn may result in better performance (see more elaborations of this point below).

Achievement Goals

Dweck and Leggett (1988) have distinguished two types of goal adoption among students in the school achievement setting, namely, the learning and performance goals. Elliot and his colleagues further propose a trichotomous framework reflecting approach-avoidance achievement goals, to separate performance goals into approach and avoidance components (Elliot &

Harackiewicz, 1996). The three independent goals posited are learning, performance demonstration, and performance avoidance goals. Learning and performance demonstration goals are defined as approach orientations, featuring regulation designed to attain positive outcomes. Learning goals focus on the development of competence and the attainment of task mastery. Performance demonstration goals focus on displaying high performance and attaining competence by publicly outperforming others. Performance avoidance goals are seen as avoidance orientation, featuring regulation designed to prevent potential negative outcomes where focus is on avoiding looking stupid or incompetent. The findings in studies by Elliot and his associates have showed that maladaptive patterns were only associated with performance avoidance goals, while adaptive patterns were associated with performance demonstration goals (Elliot & Harackiewicz, 1996; Harackiewicz, Barron, & Elliot, 1998).

As argued, students endorsing SOAM are motivated to gain approval from significant others. It is therefore likely for them to endorse goals that display high performance outcomes and avoid performance failure. That is, SOAM motivates performance goals because it is a way to show to parents that one has fulfilled the obligations to study hard and is being a "good" (achieving) child. (It is noteworthy that our prediction departs from Dweck and Leggett's, 1988, original conception of performance goals, which emphasizes on demonstrating one's ability and creating a competent self-image.) Students endorsing IOAM, by contrast, are motivated to attain personal aspirations and thus developing competence and task mastery. Therefore, we predict a positive link between IOAM and learning goal endorsement (Hypothesis 3).

The uncertain question is whether SOAM would also be linked to endorsement of learning goals. Contrary to intuition, there may be such link because first to perform well, one needs to learn new skills and develop competence; thus, it is instrumental for students endorsing SOAM to endorse learning goals as well. Second, students who endorse SOAM may also internalize their parents' expectations into their own motivational system, and thereby value learning for its own sake. As such, SOAM could be positively linked to endorsement of learning goals.

Learning Approaches

As defined by Biggs (1992), there are three types of "approaches to learning" through which a student typically copes with important academic tasks. Each approach is a combination of the specific motive and strategy adopted by students to learn. *Deep approach* is an intrinsic motivation that emphasizes qualitative learning driven by curiosity and the desire for knowledge by spending extra time on wide reading in maximizing integrating and understanding of new knowledge. *Achieving approach* is an extrinsic motivation that emphasizes the attainment of high grades by having effective study skills and allocating time and effort cost-effectively based on the importance of task. *Surface approach* is an extrinsic motivation for obtaining a qualification and avoiding failure by sheer memorization of selected details and reproducing correctly.

These learning approaches are likely to be motivated by the students' matching goals. As argued, students who endorse SOAM are guided by performance demonstration and avoidance goals, and thus would find the achieving and surface approaches appealing. By contrast, students who endorse IOAM are guided by learning goals, and thus would find the deep approach appealing. It is therefore postulated that SOAM endorsement is likely to be associated positively with adopting an achieving or surface approach, whereas IOAM endorsement is likely to be associated positively with adopting a deep approach (Hypothesis 4).

Effort Expenditure and Actual Examination Performance

Effort is crucial, it is not sufficient merely to try; the outcome of hard work should also be demonstrated to significant others in fulfilling their expectations. Performance demonstration goals are found repeatedly to be associated with actual examination performance (Elliot & Church,

1997; Elliot & McGregor, 1999; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz, Barron, Tauer, & Elliot, 2002). To the extent that SOAM is positively linked to endorsement of performance demonstration goals, we predict that SOAM endorsement should exert an indirect effect on actual examination performance in school. Specifically, SOAM endorsement foster a motive to show high performance in examinations through the adoption of achieving approach to learning, and therefore motivate students to spend time and effort in studying, which in turn lead to better actual academic performance (Hypothesis 5).

Overview of the Present Research

As shown in Figure 1, we tested the five hypotheses in five studies, with multiple studies testing most of the hypotheses. We intentionally built in overlaps and repetitions in the design of the studies to test for consistency in the findings. In addition, to increase the generalizability, we recruited student samples from different levels, ranging from junior high to college, in different studies. Consistently across studies (except Study 2), we tested the hypotheses by first measuring participants' endorsements of SOAM and IOAM using a questionnaire (Yang & Yu, 1988; A. B. Yu & Yang, 1994; which will be elaborated below), and calculating the independent associations of SOAM and IOAM with the dependent variables (e.g., emotion, goal endorsement, actual academic performance) using multiple regression analysis; as such, any significant associations found between SOAM and the dependent variables can be attributed to SOAM uniquely (controlling for the contributions of IOAM) and vice versa. This strategy can achieve our goal of testing the unique patterns of cognition, affect, and behavior in the SOAM and IOAM systems. In addition, to test the possibility that the students have internalized the expectations of parents and significant others (SOAM) into their own intrinsic achievement motivation (IOAM), we examined the mediating effects of IOAM on the links between SOAM and outcome variables. Specifically, we performed mediational analysis (SOAM $\rightarrow$ IOAM $\rightarrow$ outcome) when SOAM and IOAM showed significant positive correlations with particular outcome variables. Furthermore, path analysis using model testing with AMOS 20 was conducted to test the theoretical paths based on the proposed SOAM model (see Figure 1) by assessing the fit of proposed conceptual model to the observed data. The small sample size prevented us from including all measured factors in the assessed model; thus, only theoretically central effects were included. As an overview, Table 1 shows the basic descriptive statistics of SOAM and IOAM endorsements across the five studies.[1] Samples in all studies scored higher on IOAM than SOAM on average and also the IOAM and SOAM were in general positively correlated (except in Study 5). This pattern is consistent with our early argument that the two achievement orientations can coexist, and are not necessarily in conflict with each other. That being said, we predicted that the two achievement orientations would be associated with different achievement processes and will test the proposed hypotheses in five studies.

Study 1: Perceiving Academic Achievement As an Obligation

Central to our research is that the SOAM sets up a framework within which academic achievement is seen as an obligation. That is, students' endorsement of SOAM should be positively correlated with the likelihood of viewing academic achievement as an obligation (Hypothesis 1). To test this idea, we gauged participants' perceptions of a protagonist in a scenario (a real case reported in a local newspaper) in this study.

Method

Participants. One hundred and eleven Hong Kong Chinese students (48 males, 61 females, and 2 without stating gender) enrolled in an Introduction to Social Psychology class were recruited as participants. Their ages ranged from 19 to 23, and the average age was 20.31.

Table 1. Descriptive Statistics the Main Predictors SOAM and IOAM Across Studies 1 and 3 to 5.

	Study 1 (N = 111)		Study 3 (N = 152)		Study 4 (N = 131)		Study 5 (N = 89)	
	M (SD)	α	M (SD)	α	M (SD)	α	M (SD)	α
SOAM	3.45 (.61)	.92	3.52 (.78)	.87	3.43 (.57)	.87	3.45 (.42)	.83
IOAM	4.25 (.54)	.91	4.16 (.72)	.86	4.11 (.55)	.87	4.41 (.39)	.85
Difference between SOAM and IOAM	$t(110) = -12.95$****		$t(151) = -11.07$****		$t(130) = -12.37$****		$t(88) = -16.99$****	
Correlation between SOAM and IOAM	.37****		.55****		.38****		.11	

Note: SOAM = social-oriented achievement motivation; IOAM = individual-oriented achievement motivation.
****$p < .001$.

Measure and Procedures

Measures of SOAM and IOAM. The scales of SOAM and IOAM developed by A. B. Yu and Yang (1987) were administered to students (appendix). This scale was in Chinese language and was validated with Chinese samples in Taiwan. We used the original Chinese version of the scale throughout all the studies. (In fact, all the materials we used throughout the studies were in Chinese language as all our participants were native Chinese speakers.) The SOAM scale consists of 30 items, such as "I try my best to meet my parents' expectations so as not to disappoint them" and "I work hard to reach the standard that my parents have set for me." The IOAM scale consists of 30 items, such as "I try to do my best if I consider it to be valuable for me", and "I evaluate my performance based on my own expectations and standards." Participants were asked to rate each item on a 6-point scale from 1 (*not at all true of me*) to 6 (*very true of me*). Cronbach's alphas were .91 for SOAM and ranged from .87 to .91 for IOAM measures (Wang, Slaney, & Rice, 2007; A. B. Yu & Yang, 1987). The test–retest reliability of the SOAM and IOAM ranged from .79 to .86 (A. B. Yu & Yang, 1987).

Participants were then asked to read a news excerpt (a real case) from a local newspaper about a protagonist who persisted in taking a public examination many times after repeated failures to meet the expectation of his parents despite the fact that he was not interested in studying at all. (Participants were presented with the original Chinese version of the news excerpt.)

> Fai, 19 years old, is going to retake the public examination (HKCEE, Hong Kong Certificate of Education Examination) for the third time. After the divorce of his parents, Fai lived with his mother and four younger siblings. As the eldest son, he expressed the view that academic pursuit is his mission and said that, "There is no other way, I am the most capable one to study in the family. Both of my parents wish that I can go to university so as to be a good example for my younger siblings. I persist only to satisfy my parents' wishes. I myself am not interested in studying."

Perception Measures. After reading the scenario, participants were asked to rate nine items related to the protagonist's obligatory character, academic ability, and personality. Items relating to obligatory character included: "He, as a son is, from 1, *very good*, to 6, *very bad*"; "He, as an elder brother is, from 1, *very good*, to 6, *very bad*"; and "He is, from 1, *very filial*, to 6, *not filial*." We defined obligatory character here in terms of fulfilling family role obligations. Items relating to academic ability included "He is, from 1, *very intelligent*, to 6, *very stupid*"; "He is, from 1, *very goal-oriented*, to 6, *not goal-oriented*"; and "good chance of passing the examination that he was going to retake, from 1, *very high*, to 6, *very low*." Items relating to personality included "He is, from 1, *very persistent*, to 6, *not persistent*"; "He is, from 1, *very diligent*, to 6, *very lazy*"; and "He is, *very honest*, to 6, *not honest.*"

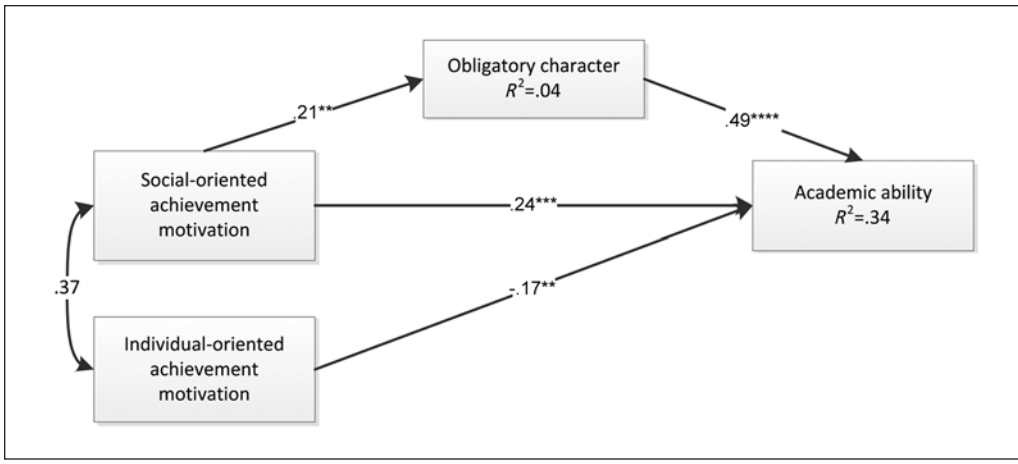

Figure 2. Path analysis indicating relationships between SOAM, IOAM, perception of the protagonist's obligatory character, and academic ability (Study 1).
Note: SOAM = social-oriented achievement motivation; IOAM = individual-oriented achievement motivation. Path loadings are standardized regression coefficients.
**$p < .05$. ***$p < .01$. ****$p < .001$.

Results and Discussion

Data Reduction. A principal component factor analysis with varimax rotation was performed on participants' appraisals of the protagonist. The scree test showed that a three-factor solution was optimal: Factors 1, 2, and 3 accounted for 40%, 15%, and 11% of the variance, respectively. As we originally planned, items that loaded on Factors 1, 2, and 3 were related to the obligatory character of the protagonist (i.e., whether the protagonist is filial, a good son, and a good brother), his personality (i.e., whether the protagonist is diligent, persistent, and honest), and his academic ability (i.e., whether the protagonist is intelligent, goal-oriented, or has a good chance of passing the public examination that he will retake), respectively. As such, we average participants' ratings on items for each factor and calculate three scores to index the participants' perceptions of the protagonist's obligatory character, personality, and academic ability.

Testing Hypothesis 1. To test whether students with higher SOAM scores would perceive the protagonist more positively, a multiple regression analysis using the SOAM and IOAM as predictors was performed on each of the three ratings. Consistent with Hypothesis 1, SOAM predicted more positive perception of the protagonist's obligatory character (at a marginally significant level: $\beta = .20$, $p = .05$) and academic ability ($\beta = .34$, $p < .01$). By contrast, the IOAM was found to be a negative predictor of the academic ability though not significant ($\beta = -.15$, *ns*).

SOAM Model. Results from path analysis using model testing provided additional support for our hypothesis. The suggested theoretical model in Figure 2 provided an excellent fit to the data: $\chi^2(N = 111, df = 1) = .185$, $p = .67$, $\chi^2 / df = .185$, Comparative Fit-Index (CFI) = 1.00, Root Mean Square Error of Approximation (RMSEA) = .000. Specifically, as Figure 2 illustrated, SOAM exerted a direct ($\beta = .24$, $p < .01$) and indirect effect ($\beta = .10$, $SE = .05$; 95% confidence interval [CI] = [.02, .22], $p = .03$; Sobel test = 2.09, $p = .04$) on perceived academic ability through perceived obligatory character. (All the estimates, standard errors, and the biased corrected confidence interval of standardized indirect effect and total effect were bootstrap parameters obtained by bootstrapping resampling with sample size = 2,000.) The model explained

34% of the variance of perceived academic ability with total effect of SOAM with β = .35(*SE* = .08), 95% CI = [.18, .50], $p = .001$, indicating that the greater the SOAM endorsed by students, the more positively they evaluated the protagonist's obligatory character and thus they perceived his academic ability more favorably; by contrast, IOAM had a direct negative effect (β = −.17, $p < .05$) on the perceived academic ability. In sum, supporting Hypothesis 1, the higher the SOAM endorsed by students, the more positive they perceived protagonist's obligatory character in fulfilling family role obligation and academic ability. By contrast, students' endorsements of IOAM did not predict their perception of the protagonist, and if anything, they tend to predict negatively their perception of his academic ability. It is worth noting that SOAM endorsement did not predict judgment of the protagonist's general personality, suggesting that it is not a halo effect. SOAM endorsement did however predict specific domains, namely obligatory character and academic ability. More importantly, the indirect effect of SOAM on perceived academic ability through the perceived obligatory character highlighted that when the protagonist was evaluated more favorably in fulfillment of obligation, he was also judged more favorably in academic achievement domain. This pattern may be given rise by attribution of academic outcomes to effort. That is, the more a student is motivated to fulfill his or her obligation by studying hard, the more likely the hard effort would bring about good academic outcomes in the future (cf. Sabini & Monterosso, 2003). It is also noteworthy that, in this study, protagonist's obligatory character was not defined in terms of a broader sense of social duties or virtues as conceptualized in the West, but specifically in the sense of fulfilling a family role obligation, showing filial piety as a good son to parents and a good eldest brother to the siblings. As such, the results of this study support a positive link between persistence in academic pursuit and perception of moral obligation in terms of fulfilling family role obligations.

Study 2: Obligatory Endeavor Evokes Agitated Emotions

Given that Study 1 shows that academic achievement is seen as an obligation, academic failures should also evoke obligatory related emotions, that is, the "agitated" emotions that were found to be associated with actual-ought self-discrepancies (Higgins, Shah, & Friedman, 1997) (Hypothesis 2a). To test this idea, the present study examined the link between a belief about academic achievement as a moral obligation (i.e., obligation has implication on morality according to duty-based morality; Chiu et al., 1997) and the concomitant emotional responses in academic settings. Specifically, we first assessed how much the students associate academic behaviors or attitudes with morality. Then, we assessed their emotional responses toward their grades in an actual examination. According to our model, students who associate academic behaviors/attitudes with morality should be more vulnerable toward "agitated" emotions, such as guilt, in achievement settings. Furthermore, this link should be present only for agitation emotion, but not for nonagitated emotion, such as disappointment.

Method

Participants. Ninety-seven Hong Kong Chinese students (39 males, 58 females) enrolled in an introductory psychology class were recruited as participants. Their ages ranged from 19 to 23, and the average age was 20.27.

Materials and Procedures

Measure of the link between academic behaviors/attitudes and morality. Previously, Tao and Hong (2000) have asked an independent group of Hong Kong Chinese students to generate behaviors and attitudes in academic settings, and collated 69 commonly mentioned academic behaviors and attitudes. In the present study, participants were asked to indicate the extent to which each of the 69 statements about academic behaviors and attitudes was related to morality on a 6-point scale

ranging from −3 (*highly immoral*), to 0 (*irrelevant to morality*) to +3 (*highly moral*). Sample statements are "He/She has a loose work attitude" and "He/She works hard for the future." We then calculated the average absolute scores of participants' ratings, such that the greater the ratings the more the academic behaviors and attitudes were relevant for (im)morality.

Measure of emotions. About a month later, participants were informed about their actual midterm examination scores and the percentile for their scores in the Introduction to Social Psychology course. Participants were then asked to rate on a questionnaire their emotions after receiving their midterm results and to rate the extent to which they felt guilty (agitation emotion) and disappointed (nonagitated emotion) from 1 (*not at all true of me*) to 6 (*very true of me*), among other filler items, including feeling lucky, having high ability, and having low ability.

Results and Discussion

As predicted, students' average moral rating of the academic behaviors and attitudes was positively correlated with their guilt feeling ($r = .23$, $p < .05$). However, because students' actual examination scores affected their emotions ($r = -.41$ for guilt and $r = -.46$ for disappointment, $ps < .001$), we need to partial out the variance accounted for by students' actual examination scores on emotion. The partial correlation between the morality rating and guilt (agitation emotion) was significant as predicted ($pr = .25$, $p < .05$). Moreover, as expected, the partial correlation between the morality rating and disappointment (nonagitated emotion) was not significant ($pr = .06$, *ns*). Moreover, no significant correlations were found between the morality rating and other filler items such as feeling lucky, having high ability, and having low ability. These findings support Hypothesis 2a that the more students see academic achievement as reflecting morality, the more they feel guilty but not disappointed, even when examination scores are statistically controlled.

Study 3: SOAM Predicts Agitated Emotions and Performance Goals

This study tested the predicted links between SOAM and "agitated" emotions, including guilt, shame, and anxiety after the students received false failure feedback on a novel achievement task (Hypothesis 2b). In addition, it also examined how SOAM is linked to different performance goals. Specifically, as stated in Hypothesis 3, we predicted that SOAM is associated positively with performance demonstration goals (i.e., to be judged favorably and look smart) and performance avoidance goals (i.e., to avoid looking stupid), and that IOAM is associated positively with learning goals (i.e., to develop one's skills and ability). In addition, it is also possible that SOAM is positively linked to learning goals because to demonstrate ability by attaining high grades, students endorsing SOAM need to learn new skills and develop competence; thus, it is instrumental for them to endorse learning goals as well.

Internalization of SOAM

In this study, we also sought to test the possibility that students may internalize and incorporate parental values and goals of achievement as their own (Chao, 1994; Chirkov, Ryan, Kim, & Kaplan, 2003; Deci, Eghrari, Patrick, & Leone, 1994; Grolnick, Deci, & Ryan, 1997; Hui, Sun, Chow, & Chu, 2011; Lepper, 1983); that is, students who endorse SOAM may also internalize their parents' goals and standard of excellence into their own inspirations. As a result, SOAM would enhance IOAM, which in turn will be linked to the agitated emotion and achievement goals (performance demonstration and avoidance goals, and learning goals). To discern this alternative process, we also test the mediating role of IOAM between SOAM and the major dependent measures.

Method

Participants. One hundred and fifty-two Hong Kong Chinese high school students (65 males and 73 females, and 14 without stating gender) participated in this study. Among them, 86 were from seventh grade and 66 were from eighth grade. Their ages ranged from 12 to 17 and the average age was 13.22.

Measures and Procedures

Achievement motivation orientations. A shortened version of the SOAM-IOAM scale was administered to ensure that the high school students were able to answer the questionnaire survey within the limited time they were given. Only 15 items of SOAM and 15 items of IOAM were selected for inclusion because these items showed highest factor loadings as reported in Tao and Hong (2000). The appendix indicates which items were selected.

Achievement goals. To measure participants' goal orientations, three subscales from the Pattern of Adaptive Learning Survey (PALS; Midgley, Maehr, & Urdan, 1993) were administered to the students, namely the learning goals (e.g., "I like schoolwork that I'll learn from, even if I make a lot of mistakes."), the performance demonstration goals ("I would feel successful if I did better than most of the other students in my class."), and the performance avoidance goals ("One reason I would not participate in class is to avoid looking stupid.") subscales. Participants were asked to rate all items on a 5-point scale from 1 (*not at all true of me*) to 3 (*somewhat true of me*) to 5 (*very true of me*).

About 2 weeks later, participants were asked to take part in an experiment. Each participant was asked to work on an abstract reasoning test on a computer. They were told that the test assessed intelligence and had been taken by many students in different schools. After they finished, the computer allegedly scored their answers and calculated a score. All students were told that they had only gotten 4 out of 20 correct in the abstract reasoning test and that their scores were much lower than the average score obtained by peers of the same grade in other schools (students in the same grades in other schools got 16 out of 20 correct on average).

Emotional responses after failure. After participants received the false failure feedback, they were then asked to rate their emotions on a 6-point scale from 1 (*not at all true of me*) to 6 (*very true of me*). "When I found out about my performance in the test, I felt (am) . . . " for example, from 1 (*not guilty at all*) to 6 (*very guilty*) and from 1 (*not disappointed at all*) to 6 (*very disappointed*). The negative emotions included three agitated emotions (anxiety, shame, and guilt) and three negative nonagitated emotions (dissatisfaction, disappointment, and frustration). An index of agitated emotion and that of nonagitated emotion was calculated by averaging responses to the three agitation emotion items and the three nonagitated emotion items, respectively. Five positive emotions (happiness, excitement, success, relaxation, and pride) were included as filler items.

Feelings of failure. As a manipulation check on the false failure feedback, participants were asked to rate the following item immediately after the emotion items: "Do you think your performance in the test was a failure?" from 1 (*absolutely not at all a failure*) to 6 (*absolutely a failure*). At the end of the experiment, participants were carefully debriefed, and assured that the failure feedback was not real and did not reflect their actual performance.

Results and Discussion

Results of multiple regression analyses are summarized in Table 2. Results of path analysis with model testing (Hypothesis 2b) are illustrated in Figure 3.

Table 2. Descriptive and Inferential Statistics of Repeated Scales Used Across Studies 3 to 5, With Standardized Regression Coefficients of Multiple Regressions Analyses Using SOAM and IOAM As Predictors.

	Study 3: 7th- and 8th-grade students					Study 4: 11th-grade students					Study 5: College students				
			β					β					β		
Criterion variables	α	*M* (*SD*)	SOAM	IOAM	R^2	α	*M* (*SD*)	SOAM	IOAM	R^2	α	*M* (*SD*)	SOAM	IOAM	R^2
Learning goals	.72	3.23 (.76)	.29***	.33***	.30	.73	3.53 (.80)	.20**	.37****	.24	.74	3.87 (.66)	.08	.34****	.13
Performance demonstration goals	.66	2.99 (.76)	.27***	.08	.05	.78	3.67 (.90)	.51****	.06	.30	.81	4.05 (.79)	.40****	.12	.18
Performance avoidance goals	.64	2.37 (.70)	.34****	−.26***	.09	.70	3.25 (.82)	.38****	.08	.18	.73	3.16 (.73)	.38****	−.17	.16
Agitated emotion	.70	2.23 (1.06)	.26**	−.08	.05	.92	4.02 (1.22)	.50****	.04	.27					
Nonagitated emotion	.79	2.60 (1.27)	.11	−.13	.01										
Feelings of failure	—	3.56 (1.52)	.34****	−.20**	.08										
Parental influence						.86	4.61 (1.57)	.59****	−.12	.31	.84	4.75 (1.26)	.23**	−.09	.06
Test anxiety						.94	2.46 (.65)	.47****	−.10	.20	.91	2.21 (.46)	.22**	−.13	.06
Deep approach						.81	3.20 (.61)	.21**	.48****	.35	.86	3.11 (.60)	−.03	.57****	.32
Achieving approach						.85	2.91 (.69)	.52****	.25****	.43	.77	3.00 (.53)	.49****	.28***	.35
Surface approach						.60	3.02 (.51)	.43****	−.13	.16	.73	3.00 (.49)	.48****	−.14	.24
Effort in studying											.62	3.54 (.96)	.21*	.06	.05
Exam. performance											—	46.21 (8.19)	.25**	.00	.06

Note: SOAM = social-oriented achievement motivation; IOAM = individual-oriented achievement motivation.
*p = .05. **p < .05. ***p < .01. ****p < .001.

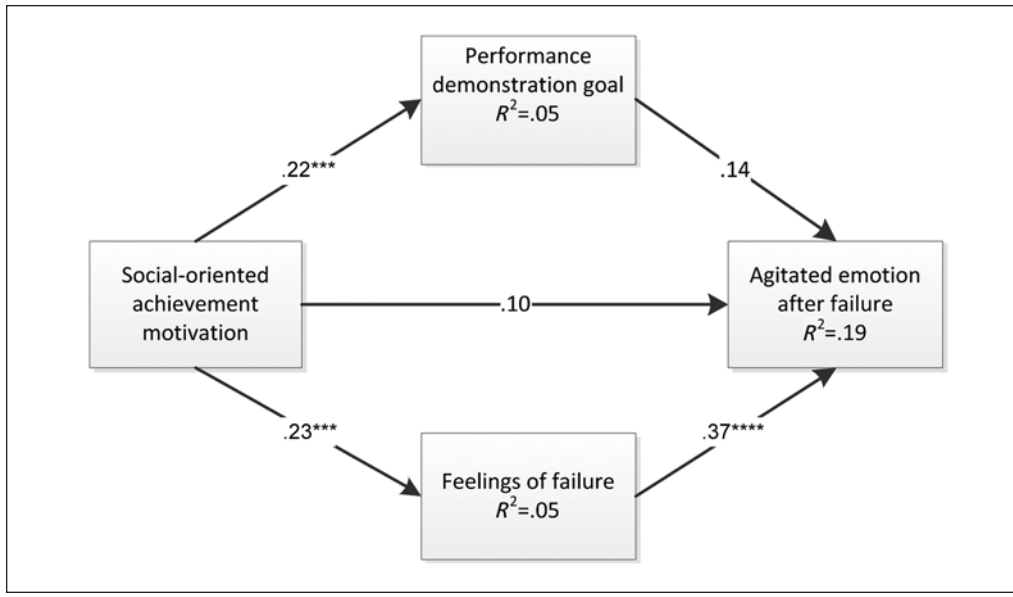

Figure 3. Path analysis for Hypothesis 2a, indicating relationships between SOAM, performance demonstration goals, feelings of failure, and agitated emotion after failure (Study 3).
Note: SOAM = social-oriented achievement motivation. Path loadings are standardized regression coefficients.
$^{**}p < .05$. $^{***}p < .01$. $^{****}p < .001$.

Feelings of Failure. Participants' average rating on the extent to which they perceived their test performance as a failure was higher than the midpoint of the scale (see Table 2, $M = 3.56$, on a 6-point scale from 1 [*absolutely not at all a failure*] to 6 [*absolutely a failure*]), indicating that the failure feedback was effective in general. Interestingly, regression analysis revealed that student's feelings of failure were positively associated with SOAM endorsement, but negatively associated with IOAM endorsement (see Table 2). This suggests that the failure feedback was more likely to be interpreted negatively by students with a higher SOAM endorsement than those with lower SOAM endorsement. However, students with a higher IOAM endorsement might lessen their negative interpretation of the feedback.

Emotional Responses After Failure. As predicted, SOAM was found to be positively associated with agitation emotions, but not with nonagitation emotions. IOAM was not significantly related to either agitated or nonagitated emotions (see Table 2). In sum, consistent with Hypotheses 2a and 2b, the findings show perceived academic failures would evoke agitated emotions among students who endorse SOAM.

Achievement Goals. As shown in Table 2, as predicted, SOAM was a significant positive predictor of performance avoidance goals and performance demonstration goals. Moreover, as predicted, IOAM endorsement was a positive predictor of learning goals. Interestingly, SOAM was also found to be a positive predictor of learning goals adoption.

SOAM Model. As Figure 3 illustrated, results from path analysis using model testing provided additional support for our hypothesized SOAM model. The suggested conceptual path model in Figure 3 provided an excellent fit to the data: a $\chi^2(N = 152, df = 1) = .283$, $p = .60$, CFI = 1.00, RMSEA = .000. There was a direct effect of SOAM on performance demonstration goals. The

path from performance demonstration goals to agitation emotion (after failure) was positive but not significant. The indirect effect of SOAM on agitation emotion after failure feedback via the feelings of failure was significant, with β = .12 (*SE* = .05), 95% CI = [.04, .22], *p* = .004 (two-tailed); Sobel test = 2.5, *p* = .01. The total effect of SOAM on agitation emotion was significant with β = .22 (*SE* = .07), 95% CI = [.64, .35], *p* = .006. The model explained 19% of the variance of agitation emotion after failure. The significant mediating role of feelings of failure for the link between SOAM and agitation emotion supported our prediction that the higher the SOAM endorsement, the more they would experience the spontaneous agitation emotion in the face of perceived failure (Hypothesis 2b).

Internalization of SOAM. To test whether the students have internalized SOAM into IOAM, we tested systematically the mediating role of IOAM on the links between SOAM and the major outcome variables. Results revealed that IOAM plays a discernible mediating role for learning goals. Specifically, results revealed that IOAM acted as a partial mediator. That is, although the indirect effect of SOAM on learning goals via IOAM was significant, β = .18 (*SE* = .05), 95% CI = [.09, .28], $p < .01$ (two-tailed); Sobel test = 3.22, $p < .01$, SOAM was still significantly associated with learning goals after controlling for IOAM (β = .29, $p < .01$). In short, findings supported that internalization of SOAM into IOAM can affect learning goals but SOAM still has a unique effect on learning goals beyond that of IOAM.

Study 4: SOAM Predicts Achievement Goals and Learning Approaches

The primary goals of this study are to test the links between SOAM with achievement goals and learning approaches. Specifically, as stated in Hypothesis 4, to obtain high grades in examinations and avoid any unpleasant consequences caused by examination failure, SOAM endorsement should associate positively with the adoption of the achieving and surface approaches to learning. By contrast, IOAM endorsement should associate positively with the adoption of deep approach to learning.

In addition, we also investigated the following two secondary issues: (a) *Parental influence*—we argued that the core meaning and source of SOAM is rooted in parental influence on students. The more the students are influenced by parents, the more they would wish to satisfy the goals and standards of excellence set by their parents, and the more they would feel obliged to fulfill their perceived social and filial obligations toward them through academic achievement. To test these ideas, we included measures of parental influence in the present study and predicted that SOAM would be positively associated with the extent of parental influence. (b) *Agitation emotions and test anxiety*—findings in Study 3 have shown that SOAM predicted agitated emotions when the participants met with setbacks. This study sought to replicate the findings and test whether SOAM also predicts students' test anxiety in general.

Method

Participants. One hundred and thirty-one Hong Kong Chinese students (68 males, 63 females) in Form 4 at a secondary school (Grade 11) participated in this study. Their ages ranged from 15 to 17, and the average age was 15.40.

Measures and Procedures

Parental influence. This measure was adapted from S. Iyengar and Dweck (2002) and comprised six items measuring the parental influence on a 6-point scale, from 1 (*not at all*) to 6 (*extremely*). Three items related to the extent of parents' direct influence on the participants:

"To what extent do your parents have the ability to change (a) your actions and behavior, (b) your personal traits, and (c) your values and beliefs?" Another three items related to the extent of change made by participants due to parental influence: "To what extent would you try to change (a) your actions and behavior, (b) your personal traits, and (c) your values and beliefs based on the concerns and preferences of your parents?"

Agitation emotions. To measure participants' agitation emotions in the face of academic setbacks, participants were asked to rate from 1 (*not at all*) to 6 (*extremely*), with three items indicating how (a) guilty, (b) ashamed, and (c) anxious they felt when they were dissatisfied with their examination results.

Test anxiety. To measure participants' test anxiety, the 20-item Test Anxiety Inventory was used (Spielberger, 1980). Participants were asked to give ratings from 1 (*almost never*) to 4 (*almost always*), for each item to indicate how they felt and reacted while taking examinations. The sample item is "Even when I'm well prepared for a test, I feel very nervous about it." The reliability and validity of this scale is well documented (Spielberger, Gorsuch, & Lushene, 1970).

Achievement goals. The measure of achievement goals was the same as the one used in Study 3.

Learning approaches. To identify participants' approaches to learning, they were given Form A of the LPQ (Learning Process Questionnaire; Biggs, 1987a, 1992), a 36-item questionnaire designed for senior secondary school students. The sample item of deep approach is "I become interested in many school subjects when I work at them." The sample item of achieving approach is "I will work for top marks whether or not I like the subjects." The sample item of surface approach is "In most subjects I do enough just to pass, and no more." Participants were asked to rate each item from 1 (*never true of me*) to 5 (*always true of me*). Students were asked to fill out all the questionnaire measures stated above together with the measures of SOAM and IOAM (which are identical with the ones used in Study 1) in class. They were explained about the purposes of the study a month after the study was finished.

Results and Discussion

Results for all multiple regression analyses are summarized in Table 2. The result of path analysis using model testing was illustrated in Figure 4.

Parental Influence. As predicted, only SOAM endorsement was found to be associated positively with the measure of parental influence on participants. This finding helps to establish the construct validity of SOAM. Moreover, parental influence was not associated with IOAM endorsement, suggesting that SOAM and IOAM are distinct constructs although the correlations of SOAM and IOAM were significant in most studies (see Table 1).

Agitation Emotions and Test Anxiety. Replicating findings from Study 3, only SOAM endorsement was found to be a significant predictor of test anxiety and agitation emotions. IOAM endorsement, by contrast, did not predict either agitation emotions significantly or test anxiety.

Achievement Goals. Similar to the findings in Study 3, SOAM score was found to be a positive predictor of performance avoidance goals, performance demonstration goals, and learning goals. Again, the IOAM score was found to be a positive predictor of learning goals adoption only.

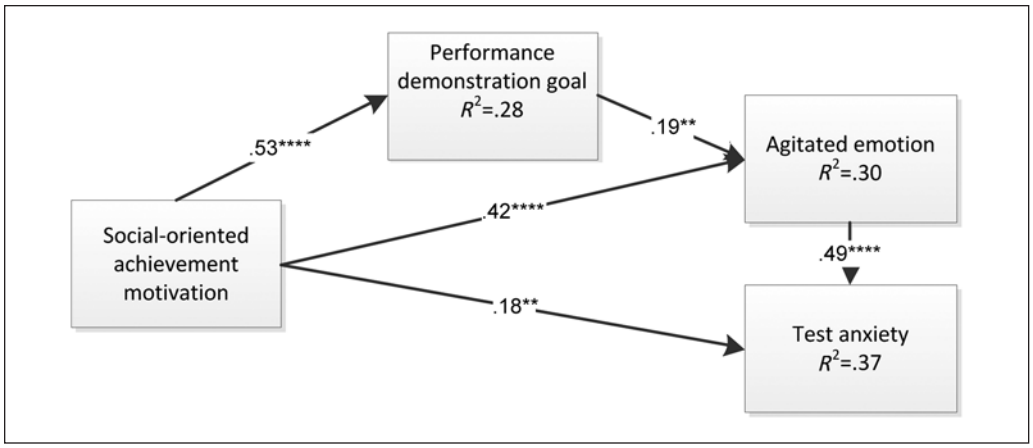

Figure 4. Path analysis for Hypothesis 2b, indicating relationships between SOAM, performance demonstration goals, agitated emotion, and test anxiety (Study 4).
Note: SOAM = social-oriented achievement motivation. Path loadings are standardized regression coefficients.
**p < .05. ***p < .01. ****p < .001.

Approaches to Learning. As predicted, results revealed that SOAM endorsement was a positive predictor of achieving approach and surface approach. By contrast, IOAM endorsement was a positive predictor of deep approach. Interestingly, a positive relationship was also found between SOAM endorsement and adoption of deep approach.

SOAM Model. As illustrated in Figure 4, the theoretical model provides an excellent fit to the data: $\chi^2(N = 131, df = 1) = .84$, $p = .36$, χ^2 / df = .84, CFI = 1.00, RMSEA = .000. SOAM exerted significant direct effects on performance demonstration goals, agitation emotion, and test anxiety with β = .53, .42, and .18, respectively. There were also significant indirect effects of SOAM on test anxiety through performance demonstration goals and agitation emotion with β = .25 (*SE* = .05), 95% CI = [.16, .37], p =.001. The model explained 37% of the variance of test anxiety with significant total effect of SOAM, β = .43 (*SE* = .90), 95% CI = [.24, .58], p = .001.

Internalization of SOAM. Again, to test whether the students have internalized SOAM into IOAM, we tested systematically the mediating role of IOAM on the links between SOAM and the major outcome variables. Results revealed that IOAM plays a discernible mediating role for learning goals and deep approach to learning. Specifically, results revealed that IOAM again acted as a partial mediator. For the learning goals, the indirect effect of SOAM on learning goals via IOAM was significant, β = .14 (*SE* = .05), 95% CI = [.07, 30], p < .01 (two-tailed); Sobel test = 3.22, p < .01). After controlling for IOAM, SOAM still significantly associated with learning goals, although the direct effect of SOAM on learning goals dropped to β = .20, p < .05 from β = .34, p < .001. For deep approach to learning, the indirect effect of SOAM on deep approach via IOAM was significant with β = .18 (*SE* = .045), 95% CI= [.10, .28], p = .001 (two-tailed); Sobel test = 3.75, p < .001. However, the direct effect of SOAM on deep approach was still significant after controlling for IOAM, the β dropped to .21, p < .002 from .39, p < .001. These findings as a whole suggested that internalization of SOAM to IOAM is possible, but SOAM was still significantly linked to learning goals and deep approach to learning after controlling for IOAM.

Study 5: SOAM Predicts Achievement Goals, Learning Approaches, Effort Spent in Studying, and Performance Outcome

In this study, we sought to replicate the findings revealed in Study 4. More important, unique in this study, we sought to test the role of SOAM in predicting effort spent in studying and actual performance outcomes (Hypothesis 5). Moreover, the positive link between the SOAM and performance outcomes should be mediated by the endorsement of performance demonstration goals.

In study 4, SOAM was positively associated with achieving approach that aims for higher grades by optimizing time and effort spent for examinations. We predicted that achieving approach should mediate the relationship between SOAM, effort, and actual examination performance. We tested the mediating roles of performance demonstration goals and achieving approach as well in this study.

Method

Participants. Eighty-nine Hong Kong Chinese college students (40 males, 49 females) in an Introduction to Social Psychology class were recruited to participate. Their ages ranged from 19 to 22, and the average age was 20.20.

Materials and Procedures. At the beginning of the semester, a set of questionnaires was administered to participants. The measures of achievement motivation orientations, extent of parental influence, achievement goals, and test anxiety were the same as those used in Study 4. To measure the approaches to learning, we used the Study Process Questionnaire (SPQ) for college students (Biggs, 1987b, 1992) instead of the SPQ for high school students.

Effort in studying. To measure how much effort participants had invested in preparing for an examination during the course, students were asked to fill in the following three items on a 5-point scale, before the release of their midterm examination results: (1) "Do you usually review the materials learned in class after school every day?" from 1 (*almost never*) to 6 (*almost always*); (2) "How much time did you spend on studying before the midterm examination for this course?" from 1 (*less than 3 hr*) to 6 (*more than 15 hr*); (3) "What percentage of the assigned readings for this course have you read before the midterm examination?" from 1 (*less than 20%*) to 6 (*83%-100%*). An index of effort was obtained by averaging the scores for the above three items, and Cronbach's alpha was .62.

Actual examination performance. Participants' actual scores in the midterm examination were obtained.

Results and Discussion

By and large, the findings revealed in this study have replicated almost all of the findings in Study 4. Results of all multiple regression analysis are summarized in Table 2. Results of path analysis with model testing are illustrated in Figure 5.

Parental Influence. Similar to results in Study 4, only SOAM endorsement was found to be associated positively with the measure of parental influence on participants, but not IOAM endorsement. This again demonstrated that parental influence is at the core of SOAM, whereas IOAM is independent of parental influence.

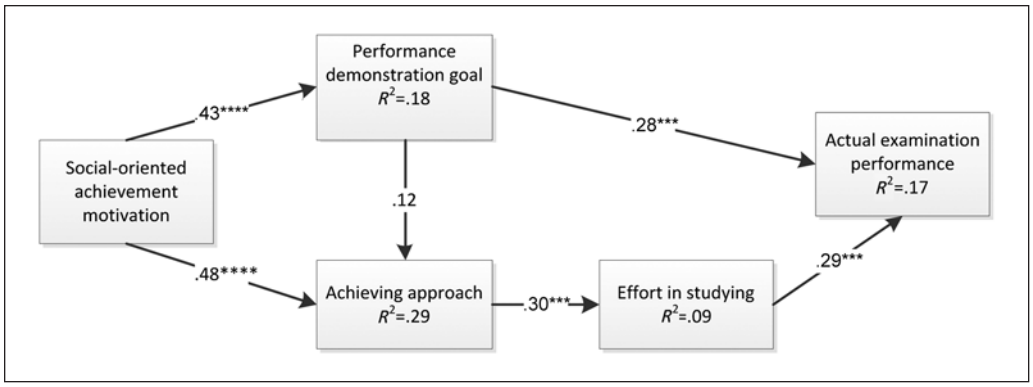

Figure 5. Path analysis for Hypothesis 5, indicating relationships between SOAM, performance demonstration goals, achieving approach, effort in studying, and actual examination performance (Study 5). Note: SOAM = social-oriented achievement motivation. Path loadings are standardized regression coefficients. $^{**}p < .05$. $^{***}p < .01$. $^{****}p < .001$.

Test Anxiety. Again similar to the findings in Study 4, SOAM endorsement was the sole positive predictor of test anxiety. No significant relationship was found for IOAM endorsement.

Achievement Goals. We again found that SOAM predicts positively endorsement of performance demonstration goals, performance avoidance goals. Again, the IOAM score was found to be a positive predictor of learning goals only. These findings replicated those revealed in Studies 3 and 4. Unlike findings in Studies 3 and 4, however, SOAM was not a significant predictor of endorsement of learning goals, although the correlation between SOAM and learning goals remains mildly positive ($r = .12$, *ns*). It is possible that the older college students in this study were more likely to exert personal autonomy in learning. Therefore, endorsing SOAM among college students would not drive them to endorse learning goals more. Rather, only IOAM was linked to endorsement of learning goals for these students.

Approaches to Learning. Again, we replicated almost all the findings in Study 4. Like before, SOAM endorsement was a positive predictor of achieving and surface approaches. By contrast, IOAM endorsement was a positive predictor of the endorsement of deep approach. Unlike Study 4, however, SOAM was no longer linked significantly with the deep approach to learning. That is, only IOAM predicted the deep approach to learning. This pattern of result corroborate with our argument above that the sample in this study is older than the sample in Study 4 and thus were more likely to exert personal autonomy in learning.

Actual Examination Performance. Consistent with predictions, there was a significant positive link between students' endorsement of SOAM and their actual examination performance, but not between IOAM and actual performance.

Efforts in Studying. As predicted, SOAM was linked positively to students' efforts in studying albeit at a marginally significant level, whereas IOAM did not predict students' effort level. In addition, effort in studying was significantly correlated with students' actual performance in the examination ($r = .35$, $p < .01$), indicating that more effort spent indeed yielded better performance.

SOAM Model. As Figure 5 illustrated, results of path analysis showed that the theoretical model provides an excellent fit to the data: $\chi^2(N = 89, df = 4) = 4.0$, $p = .40$, $\chi^2 / df = 1.01$, CFI = 1.00, RMSEA = .01. As predicted in Hypothesis 5, SOAM exerted significant indirect effects on effort in studying with $\beta = .17$ (*SE* = .06), 95% CI = [.06, .30], $p = .003$, *and* actual examination performance with $\beta = .16$ (*SE* = .05), 95% CI = [.07, .28], $p = .001$, with achieving approach, with indirect effect on actual examination performance, $\beta = .10$ (*SE* = .04), 95% CI = [.03, .20], $p = .004$, and performance demonstration goal (Sobel test = 2.36, $p < .05$) playing the mediating roles, respectively.

Overall, findings in this study replicated those revealed in previous studies and supported our predictions. Specifically, SOAM endorsement predicted parental influence, test anxiety, performance demonstration and performance avoidance goals, achieving and surface approaches to learning, effort invested in studying, and actual examination performance. By contrast, IOAM endorsement predicted a distinctive set of variables, namely learning goals, deep and achieving approaches to learning. Taken as a whole, these findings lead strong support to our argument that SOAM and IOAM represent two distinct achievement motivation systems.

General Discussion

We set out to test whether SOAM represents a new achievement motivation system within which academic achievement is viewed as an obligation and proposed its link to a constellation of academic-related cognition, affect, and behavioral responses across five studies, using different age samples and methodologies, we have found robust effects that consistently supported our hypotheses. Taken as a whole, these findings help to unpack the paradoxical phenomenon we noted among East Asian students. On one hand, the SOAM framework orients individuals toward viewing academic achievement as an obligatory endeavor. As such, academic activities and performance serve purposes beyond individuals' learning; they become useful means to fulfill obligations for the students. To show to significant others that they have fulfilled their duties, students are motivated to go extra miles to ensure delivery of high performance outcomes. As a result, more efforts are spent and extra efforts turn into better grades. On the other hand, there is also a high price to pay for students endorsing SOAM. To the extent that academic achievement is an obligation, falling short of the moral mandate will evoke a sense of failure to attain the "oughts" and thus agitated emotions (anxiety, guilt, and shame). This explains why it is common for East Asian students to report low confidence and high degree of anxiety in spite of their outstanding performance. Moreover, the goal to obtain high grades may sometimes undermine activities that would result in better learning (e.g., adopting surface approach but not deep approach to learning, as shown in Study 5). This would be detrimental to self-initiated lifelong learning, which is crucial to the information age of today's world.

Does SOAM Undermine Intrinsic Learning Motivation?

Although SOAM is associated with more effort spent in studying and better examination performance (Study 5), SOAM is driven by rewards extrinsic to the learning process, and previous research has shown that extrinsic motivation undermines learning (Vansteenkiste, Sierens, Soenens, Luyckx, & Lens, 2009). We also found that students endorsing SOAM displayed negative emotions (e.g., agitated emotions, test anxiety) in academic settings (shown in Studies 2-4), which could dampen students' interest in learning. Therefore, it seems that SOAM would jeopardize learning. However, this may not necessarily be the case if we also consider the finding that students' endorsement of SOAM was positively correlated with IOAM across Studies 1, 3, and 4 (*rs* ranged from .37 to .52, *ps* < .001). These findings challenge the common view that an extrinsic motivation system, like SOAM, cannot coexist with an intrinsic motivation system, like

IOAM. It is typically found in Western culture that intrinsic and extrinsic motivational systems are antagonistic to each other and only one system would dominate; having extrinsic rewards would erode students' intrinsic motivation to learn. For example, Lepper et al. (2005) found a negative correlation between the intrinsic motivation to learn and the extrinsic motivation to please teachers among Caucasian students, but a positive correlation between the two motivations among Asian American students. Taken as a whole, in the Asian cultural context, SOAM does not necessarily preclude IOAM. A student may see academic activities as a means to satisfy parental expectations and a means to acquire skills and knowledge for the sake of learning. Holding an extrinsic and intrinsic goal at the same time does not seem to bother Chinese students.

Consistent with our argument, Lepper and Henderlong (2000) suggested a need to extend the study of motivation beyond the traditional focus on purely "intrinsic" or "extrinsic" motivation delineated by Deci and his colleagues (Deci et al., 1994; Grolnick et al., 1997). Lepper and Henderlong suggest that intrinsic and extrinsic motivations may operate simultaneously, and are not necessarily antagonistic to each other. For instance, through internalization, goals that are initially imposed externally on students by parents can be incorporated within the students' own system of goals and values (Hamilton, Blumenfeld, Akoh, & Miura, 1990; Hui et al., 2011; Lepper, 1983). As such, extrinsic motivators can simultaneously initiate processes that result in greater intrinsic motivation, such as by motivating individuals to engage in interest-enhancing strategies (Harackiewicz & Sansone, 2000; Sansone & Smith, 2000). Consistent with this notion, indeed, we found that, on one hand, SOAM exerts indirect effects on learning goals (Studies 3 and 4) via the mediation of IOAM, suggesting internalization of parental expectations into individual intrinsic motivation. On the other hand, students' endorsements of SOAM per se (i.e., after statistically controlling for IOAM) predict endorsements of learning goals significantly in Studies 3 and 4. That is, SOAM itself can foster learning as well.

Limitations and Future Directions

As noted at the outset, we have limited our scope to examining SOAM in Chinese culture, which is justifiable by the fact that an in-depth understanding of the SOAM requires systematic investigation across multiple studies. As such, five studies have been devoted to identify the key ingredients associated with SOAM at an individual level and to delineate these ingredients' internal connections that give rise to the distinct pattern of responding among Chinese students. However, we have yet to test if the patterns found can be replicated in Western cultures as well. We would like to argue that the same pattern by and large should hold across cultures. The cross-cultural differences observed should instead be related to the relative prevalence of SOAM in Eastern and Western cultures, although our Chinese samples still showed consistently higher IOAM than SOAM scores (see Table 1). This can be tested in future research. It is possible that when SOAM is widely shared among East Asians, the cultural group on average would display cognition, affect, and behavior consistent with those shown in the present study. Even though it may be less common for Westerners to endorse SOAM, those who endorse SOAM should also experience a similar pattern of cognition, affect, and behavior as do their East Asian counterparts.

That said, there may be cross-cultural differences as well. Specifically, future studies can compare the relations of SOAM and IOAM within East Asian and Western cultures. In the present research, we have shown that SOAM and IOAM are positively related and can coexist at the same time, would such positive relationship also exist in Western culture. If not, why? Would any of the factors that we proposed, including interdependent versus independent self-construal, emotional closeness to the significant others, and a cultural norm of sanctioning versus denouncing parental interference, underlie the cross-cultural difference? This would help to shed light on how culture affects the motivational system.

To conclude, across five studies, our research sheds light on Chinese students' achievement patterns from a socially oriented achievement perspective, and showed how SOAM can bring about positive achievement outcomes and negative emotion at the same time. As such, the present research has broadened our understanding of human motivation by showing that the intrinsic and extrinsic motivation can coexist to affect students' academic achievement.

Appendix

Measure of Social/Individual-Oriented Achievement Motivations (SOAM/IOAM)

Note: Items with * were those included in the shorten version used in Study 3.

SOAM Items

1. To get good grades, I use the study methods my teachers have taught me.
5. I try my best on schoolwork to impress my teacher.
*9. I try my best to meet my parents' expectations so as not to disappoint them.
*10. Before I do anything, I first consider whether my goals fit my parent's expectations.
11. I like to obtain detailed instructions from others before starting a new task.
*12. I am concerned with whether my school performances meet my parent's expectation.
*13. I always pursue the goals my parents intend for me.
15. When doing my homework, I try to reach the standards set by my teachers.
*16. I study hard because teachers always praise diligent students.
*18. If I don't do well on school examinations, I feel I can't face my relatives and friends.
19. I like to know the evaluations others have of my academic performance.
20. I often try hard to do something merely to show others I am always striving to improve.
*22. I would feel regretful to my ancestors if I do not achieve more than most other people.
*23. I work hard to reach the academic standards my parents set for me.
*24. My teachers' expectations and demands are the primary force for my studying harder.
*26. One of my life's main goals is to make my parents proud.
27. I try to do any kind of work well so others will believe I am highly capable.
*28. I usually try my best to do the things my parents think are valuable.
32. Whether I have done well, or not, is determined by the evaluations of my parents or teachers.
*37. I work hard to achieve the level of standards set by my classmates and friends.
38. I wish to be a publicly recognized authority in some trade, occupation, or profession.
40. Studying itself is not important to me, my main concern is how well I do on exams.
41. I study hard because I believe good grades will assure a promising future.
*42. I prefer that the quality of my accomplishments be determined by others.
*43. I worry my grades will fail behind those of my classmates if they are working harder than me.
*47. When a teacher praises other students in my class, I feel I must work harder to do better.
51. Without encouragement from others, I would give up when running into difficult tasks.
52. I want to pursue the goals that people in general consider valuable.
54. I admire most those people with high social status.
56. Without the recognition of others, I don't feel a sense of accomplishment.

IOAM Items

2. Despite the opinions of others, if I consider a task worth doing I will try my best.
3. I often stay up late to finish the work that I enjoy.
4. The pleasure I have from learning is much more important to me than course grades.
6. When I do badly on a test, even though my parents and teachers may not reprimand me, I feel I have let myself down.
*7. I continue to work on a task until I am satisfied with the result.
8. I would pursue some higher degree in education, not to glorify my parents or ancestors but for my own interest in learning.
*14. Regardless of if anyone else knows about it, I feel a sense of accomplishment after finishing a task.
17. I rely on my own approach to studying to obtain the best possible scores.
21. I determine my own life goals and values.
25. After I finish some work, I can usually determine whether my performance is good or bad.
*29. I try to do my best if I consider the task worth doing.
*30. I set high expectations and standards for myself.
*31. Even without the presence of others, I would continue to work on a task until it is finished.
*33. I enjoy studying because studying itself can increase my knowledge.
*34. The standards I set for myself are higher than what others expect of me.
*35. Completing a task is itself delightful, any pay for the work is secondary.
*36. I often try hard to do something only to demonstrate to myself that I am capable of doing it.
39. I have clear ideas about how hard I will have to work to reach my goals.
44. After finishing a job, I have clear standards in my mind about how to evaluate the result.
*45. When I complete a task, I evaluate my performance according to my own standards.
*46. I like working because work itself provides me with a sense of meaning in life.
*48. After a poor test performance I examine my study methods and, without the help of others, consider ways to improve.
*49. I work diligently for my personal success.
50. I feel disappointed in myself when I don't accomplish my personally anticipated goals.
*53. I usually do what I want to.
55. I enjoy making progress toward the educational goals that I have set for myself.
57. As working is enjoyable in itself, I am willing to be involved in any work that I feel is meaningful.
*58. When I encounter difficulties, I would rather search for my own alternative solutions than ask others for help.
59. The degree of one's achievement should only be judged by oneself.
60. I evaluate my performance based on my own set of expectations and standards.

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Note

1. The descriptive statistics and the intercorrelations among all the variables measured in all studies can be obtained from the corresponding author Vivienne Y. K. Tao by email.

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