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Gratitude is its own reward: how grateful students have better motivation and engagement

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ABSTRACT

Gratitude has mostly been explored in relation to well-being but whether it is associated with school-related outcomes such as motivation and engagement has seldom been explored. Motivation and engagement, however, are critical to students' academic success. Hence, the aim of this study was to examine how gratitude is associated with different types of academic motivation (amotivation, controlled motivation, and autonomous motivation) and engagement (cognitive, behavioural, and emotional). We recruited 1099 Chinese university students and asked them to answer questionnaires assessing their levels of gratitude, motivation, and engagement. Structural equation modelling revealed that gratitude was positively associated with controlled motivation, autonomous motivation, and academic engagement but negatively associated with amotivation. Autonomous motivation partially mediated the relationship between gratitude and academic engagement. The findings of this study elucidate the theoretical linkages among gratitude, motivation, and engagement, demonstrating the importance of gratitude for school-related outcomes.

Gratitude has received an increasing amount of attention in the psychological literature. It has been found to be associated with various indices of optimal functioning (Portocarrero et al., 2020; Wood et al., 2010). In clinical psychology, Wood et al. (2010) found gratitude to be strongly related to various indices of positive functioning. In social psychology, gratitude's role in promoting social relationships is well-documented (Algoe, 2012). In organisational psychology, gratitude has been found to be associated with higher levels of job satisfaction and positive organisational outcomes (Fehr et al., 2017).

Educational researchers have also explored the role of gratitude. Froh et al. (2011) found that gratitude was associated with higher student well-being and lower mental health problems among adolescent students. Studies have found that gratitude was

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associated with higher teacher well-being as well (Chan, 2010). However, much of the research on gratitude in school contexts seem to focus on how it is associated with well-being outcomes (Caleon et al., 2019; Froh et al., 2011; Valdez et al., 2017 see however King and Datu, 2018). Less research has focussed on how it is associated with learning-related outcomes such as students' academic motivation and engagement. This is an important gap to examine given that motivation and engagement drive student learning and achievement (Elliot et al., 2017; Haw and King, 2022 Pintrich & De Groot, 2003). Furthermore, lack of motivation and engagement have also been frequently mentioned by teachers and administrators as key concerns (Brophy, 2004; King and McInerney, 2014; Mendoza and King, 2022). Hence, the aim of this study was to examine whether and how gratitude is associated with key learning-related outcomes such as academic motivation and engagement.

Literature review

Gratitude

Gratitude is defined as an 'orientation towards noticing and appreciating the positive in life' (Wood et al., 2010, p. 891). Past studies have mostly focused on how gratitude is associated with both positive and negative well-being outcomes (Wood et al., 2010). Several studies have shown that grateful individuals have higher levels of life satisfaction, positive emotions, and lower levels of negative emotions (Xiang and Yuan, 2021). They also have higher levels of autonomy, environmental mastery, personal growth, purpose, self-acceptance, and meaning among others (Kashdan et al., 2006; Kleiman et al., 2013). Concomitantly, gratitude has been found to be negatively associated with negative indicators of well-being. Grateful individuals are less likely to be depressed and anxious and are also less likely to engage in alcohol abuse and suicidal behaviours (Cregg & Cheavens, 2021; Kaniuka et al., 2021).

Aside from well-being, gratitude has also been found to be closely linked to the quality of relationships. Grateful individuals are more likely to receive greater peer and family support (Froh et al., 2009). Gratitude can also enhance the quality of social relationships as it serves to strengthen relationship formation, maintenance, and satisfaction (Algoe, 2012; Robustelli & Whisman, 2018).

Gratitude is facilitated by both individual characteristics and social factors. The big five personality traits such as extraversion, openness, agreeableness, and emotional stability have been found to be positively associated with gratitude (McCullough et al., 2002; Wood et al., 2008). For example, Wood et al. (2008) found that gratitude was most strongly associated with extraversion and agreeableness and negatively associated with neuroticism. Aside from individual characteristics, gratitude is fostered by positive social relationships and a secure attachment style (Wood et al., 2008, 2010).

In terms of outcomes, gratitude has been found to be positively associated with an enhanced sense of meaning (Kleiman et al., 2013). Grateful individuals tend to see the positive and the good in the world and in others and this imbues their lives with a greater sense of meaning. Studies have found that meaning in life is enhanced when individuals have positive social relationships, which is likewise facilitated by gratitude (Blau et al., 2019).

Gratitude is also positively associated with personal growth (Ruini & Vescovelli, 2013). Studies have shown that grateful individuals experience more positive emotions and these positive emotions could lead to greater openness to life events and the building up of key psychological resources (Liauw et al., 2018). Gratitude has also been found to be a key resilience factor that can help buffer individuals against negative states such as stress, depression, and negative emotions (Froh et al., 2008).

Gratitude in school settings

There is a small body of literature within the educational context which has mostly focussed on the implementation of gratitude interventions to increase student well-being (Froh et al., 2014; National Association of School Psychologists, 2009). Experimental studies among student populations which used different gratitude activities such as counting one's blessings and writing thank-you letters have resulted in higher levels of gratitude, well-being and life satisfaction (Froh et al., 2008).

However, these studies have mostly focussed on the role of gratitude in improving well-being related outcomes. To our knowledge few studies have explored whether and how gratitude might be associated with learning-related outcomes. We ascertained that this was indeed a critical research gap via a thorough search of several databases such as Google Scholar, EBSCO with the search terms 'gratitude' AND 'school' or 'learning' or 'achievement'. Most of the publications we found were related to well-being. This is also reflected in theoretical reviews (e.g. Day et al., 2020; Froh et al., 2011) and meta-analyses (e.g. Ma et al., 2017; Portocarrero et al., 2020) which clearly shows that gratitude is most often investigated in relation to well-being outcomes.

Ultimately, schools are interested in not only improving student well-being but most importantly in optimising learning. There are a few studies that suggest gratitude is linked with school-related outcomes beyond well-being. A study conducted by Froh et al. (2011) found that gratitude was positively correlated with academic achievement ($r = .28$, $p < .01$) among adolescent students in the US. Another study by Valdez et al. (2017) among secondary school students found that gratitude positively predicted achievement and negatively predicted maladaptive outcomes such as amotivation, defined as the absence of school-related motivation. A recent study by Bono et al. (2020) also found that a gratitude intervention embedded within the curriculum was associated with increases in school-related outcomes such as engagement, achievement motivation, and positive relationships with teachers. Another study by Armenta et al. (2022) found that students who underwent a gratitude intervention developed a higher motivation to improve themselves but did not necessarily experience an increase in academic achievement.

Gratitude has also been found to improve one's ability to bounce back from school-related challenges. Caleon et al. (2019) found that students with higher levels of gratitude were more able to effectively cope with problems related to one's schoolwork, teacher/peer relationships, and family problems. Ma et al. (2013) showed that African American students with higher levels of gratitude were more likely to be interested in their schoolwork. Their study also found that gratitude protected students

against maladaptive behaviours such as drug/alcohol use, sexual intimacy, and sexual relationships.

These studies, together, provide preliminary evidence that gratitude might also be associated with critical learning-related outcomes. In this study, we specifically examine how gratitude is associated with both adaptive (e.g. autonomous motivation) and maladaptive types of motivation (amotivation) as well as different dimensions of academic engagement (cognitive, emotional, and behavioural).

Theoretical framework

Self-determination theory (SDT) provides an overarching framework to understand why and how gratitude might be related to school-related outcomes. SDT posits that there are three basic needs-autonomy, competence, and relatedness. When these three needs are met, it results in more autonomous motivation and greater engagement (Deci & Ryan, 2012).

Grateful individuals may experience higher levels of *relatedness* as gratitude is a social emotion that 'binds and reminds' people of the significant others in their lives (Algoe, 2012). Grateful individuals have a greater sense of connectedness to others and the larger community (Lin & Yeh, 2014). They are less lonely and have higher levels of social integration (Froh et al., 2010; Lin & Yeh, 2014).

Hence, it is possible that grateful students also feel higher levels of relatedness with significant others such as parents, teachers, and peers in their lives (Sun et al., 2014). When students express their gratitude to their parents, teachers, and peers (e.g. a student thanking her teacher for providing help with a difficult homework or a daughter thanking her father for helping her with the homework), the social relationship is strengthened further enhancing this sense of relatedness. Indeed, studies have found that expressions of gratitude are key to strengthening social bonds (Algoe, 2012).

Gratitude has also been found to be linked with *autonomy* (Kashdan et al., 2009; Wood et al., 2009). Grateful individuals are more likely to see themselves as the origin of their actions. Seeing goodness and positivity in the world, they are less likely to feel coerced by their significant others and other external sources (Weinstein et al., 2010). Hence, they are more likely to feel autonomous and freely endorse their actions. Past studies have indeed found gratitude to be positively related with autonomy (Kashdan et al., 2009).

Grateful students might also have a higher sense of *competence* as they are more able to effectively navigate the social-academic environment. Several studies have found that grateful individuals enjoy a greater degree of social support which may facilitate their goal attainment (Sun et al., 2014; Wood et al., 2008). Gratitude has also been demonstrated to be associated with more effective teacher-student interaction (Howells, 2014), which is critical for better performance.

Succeeding in the school environment requires not only academic or cognitive skills but also effectively navigating the social environment. Grateful students may be able to build better relationships with their parents, peers and teachers (Sun et al., 2014). Hence, they might also be more likely to receive help from these social partners

further consolidating their skills (Wentzel et al., 2018). Social support from significant others is a key facilitator of competence (Wentzel et al., 2018) and grateful students might be able to receive more of this support given their closer relationship with significant others (Wood et al., 2008). Grateful students are also more likely to perceive a higher level of social support overall from family and friends (Sun et al., 2014). In turn, high levels of social support could build a sense of competence.

Motivation and engagement

In the present study, we focus on two key learning-related outcomes: motivation and engagement. According to self-determination theory (SDT), motivation can be conceptualised along a spectrum with varying levels of autonomy (Deci & Ryan, 2012). There are three key motivational states: amotivation (the absence of motivation), controlled motivation (the source of motivation is from external pressures or introjected guilt), and autonomous motivation (the source of motivation is identifying with the task or inherent liking for the task) (Deci & Ryan, 2012). When individuals experience the fulfilment of the three basic psychological needs, they are more likely to experience motivation as more internalised. Hence, we hypothesise that students high in gratitude would experience more autonomous forms of motivation and lower amotivation.

The external manifestation of motivation is engagement (Skinner et al., 2009). There are three types of engagement that have received the most attention: cognitive (use of deep and meaningful learning strategies), behavioural (positive school-related behaviours such as exerting effort), and emotional (positive affect experienced in relation to school-related tasks such as enjoyment) (Fredricks et al., 2004; Zhoc et al., 2022). We hypothesise that gratitude would be associated with all three forms of engagement and that these relationships would be mediated by different forms of motivation. These hypotheses are supported by numerous past studies which have shown gratitude to be positively associated with adaptive school attitudes (e.g. Froh et al., 2011; Tian et al., 2016).

Covariates

To ensure that the relationships among the key variables are not due to third variables that were not accounted for, we also included socio-demographic factors such as gender and socioeconomic status (SES). Past studies have found that females do better in school than males as manifested in higher levels of academic performance (Voyer & Voyer, 2014). They have also been shown to have more adaptive motivation and engagement profiles than males (King & Ganotice, 2014; Nalipay et al., 2020).

Another important covariate was SES. Past studies have shown that students with higher SES have higher levels of academic achievement (Sirin, 2005). Students from more advantaged backgrounds also exhibit more positive attitudes to school as manifested in higher levels of motivation, engagement, aspirations, and positive beliefs among others (Destin et al., 2019; King and Trinidad, 2021; King et al., 2022).

Cultural context

Early research on how gratitude is associated with optimal well-being related outcomes has mostly been conducted in Western settings. However, more recent studies in the Asian context have also found gratitude to be associated with adaptive levels of well-being (e.g. Datu et al., 2022; Valdez et al., 2017). In particular, several studies conducted in the Chinese setting have revealed that gratitude is associated with optimal well-being. For example, Ni et al. (2015) found that Chinese college students with higher levels of gratitude experienced lower levels of loneliness. Another study by Tian et al. (2015) found that gratitude was associated with higher levels of satisfaction with school and positive emotions at school. However, the extent to which gratitude is associated with school-related outcomes has not been explored in depth either internationally or in the Chinese cultural context.

The present study

The aim of the present study was to examine how gratitude is associated with academic engagement via academic motivation. We situate our research within the Chinese cultural context. The conceptual model is presented below. Gratitude is posited as the antecedent which in turn predicts motivation, particularly autonomous motivation. Autonomous motivation, in turn, is assumed to partially mediate the association between gratitude and engagement. We posited the following hypotheses:

> H1: Gratitude would be positively associated with autonomous motivation but negatively associated with amotivation and controlled motivation.

> H2: Gratitude would be positively associated with cognitive, behavioural, and emotional engagement.

> H3: Autonomous motivation would partially mediate the relationship between gratitude and engagement.

We did not posit specific hypotheses as regards amotivation and controlled motivation given that research on these constructs in relation to gratitude is relatively limited.

We contextualised motivation and engagement within students' English language classes. Although motivation and engagement have both been examined at the domain-general and domain-specific perspective, in this study, we focus particularly on domain-specific motivation and engagement. This is because students experience different forms of motivation and engagement across different subjects (Hornstra et al., 2016). For example, someone might be intrinsically motivated in English class but amotivated in Maths class. To enhance predictive validity, we focused only on students' motivation and engagement in their English (L2) classes. To rule out alternative explanations, we also controlled for demographic factors such as gender and socioeconomic status.

Methods

Participants and data collection

The data used for the current study was from a larger project focussing on teacher and student factors contributing to undergraduates' academic performance. Data were collected from students in a university focussing on business and economics in Shanghai, China. We only targeted first- and second-year undergraduate students because they were all required to take the college English course. Note that our dependent variables of motivation and engagement were domain-specific to English. Hence, we only recruited students taking the college English course to make the sample more homogenous and reduce unnecessary bias. Ethics approval was obtained from the Human Research and Ethics Committee (HREC) of the The University of Hong Kong. Informed consent was also obtained from the students.

Data were collected electronically through the e-survey tool built into the mobile app WeChat. A lucky draw was built into the survey system to incentivize participants to respond. A total of 1099 undergraduates (36% were freshmen) from ten disciplines volunteered to participate the current study. The mean age of the sample was 18.93 (SD=.084). Among them, 31% students were studying international trading; 26%, financial management; and 13%, business administration. The remaining 30% were distributed across accounting, tourism, law, statistics and languages. The gender ratio of females to males was 71% to 29%.

Students' socio-economic status (SES) was represented by their parents' highest education level with higher scores indicating higher SES. Around 57.2% of the students had parents who had a bachelor's degree or above.

Measures

Three six-point scales from 1 (*strongly disagree*) to 6 (*strongly agree)* were used to measure the key variables of gratitude (McCullough et al., 2002), motivation (Caleon et al., 2015), and engagement (Reeve & Tseng, 2011). The items for each scale, their descriptive statistics and reliability estimates of each scale are all shown in Table 1. Note that all the measures were translated from English into Chinese using a forward and backward translation procedure. First, the English items were translated into Chinese by a research assistant who was a bilingual speaker. Next, the Chinese version was translated again into English by another research assistant and this translation was compared with the original version. Inconsistencies in the translations were

Table 1. Descriptive statistics and internal reliabilities.

	Mean	SD	Cronbach's alpha
Gratitude	5.23	1.00	0.89
Amotivation	2.13	1.34	0.91
Controlled motivation	3.87	1.47	0.91
Autonomous motivation	4.83	1.08	0.93
Cognitive engagement	4.67	1.17	0.92
Emotional engagement	4.59	1.18	0.94
Behavioural engagement	4.69	1.11	0.91

resolved using a committee approach of two bilingual speakers (the first and the last author) who then decided on the final translation.

Gratitude
Gratitude was measured with a modified version of the Gratitude Questionnaire-6 (GQ-6; McCullough et al., 2002). GQ-6 originally had 6 items but several past studies indicated that one of the two negatively worded items did not load significantly on the latent gratitude factor (e.g. Valdez et al., 2017). Hence, we dropped these two items from further analysis. The Cronbach's alpha for the modified scale was .89.

Motivation
Motivation was measured using Caleon et al.'s (2015) adaptation of the Academic Motivation Scale (AMS) (Vallerand et al., 1992). We reworded the items so that they all referred to students' English language classes. This instrument has three subscales: amotivation (three items), extrinsic motivation (four items) and autonomous motivation (five items). Students were asked about their reasons for studying English. Sample items include: 'Honestly, I don't know, I truly have the impression of wasting my time in studying English' (amotivation); 'In order to have a better salary later on' (controlled motivation); and 'I study English because it is fun' (autonomous motivation). Cronbach's alphas ranged from .91 to .93.

Engagement
Engagement was measured using the scale developed by Reeve and Tseng (2011). We adapted their scale to focus specifically on students' English classes. Students were asked to rate their cognitive ('When I study, I try to connect what I am learning with my own experiences'), emotional ('When I'm in class, I feel good'), and behavioural ('I pay attention in class') engagement. The Cronbach's alphas ranged from .91 to .94.

Covariates
Gender was coded as 0 (female) and 1 (male). Socioeconomic status (SES) SES was operationalised in terms of parents' highest education level and was rated on a scale from 1 (*primary school or below*) to 6 (*doctoral degree*).

Data analysis

Primary data analysis involved two steps: (1) conducting confirmatory factor analyses (CFA) to assess the measurement validity and (2) conducting structural equation modelling (SEM) to examine the theoretical linkages among the variables. All CFA and SEM analyses were conducted in Mplus Version 8.3 (Muthén & Muthén, 1998–2018) using maximum likelihood robust (MLR).

Multiple criteria were used to evaluate model-data fit: Tucker-Lewis index (TLI), comparative fit index (CFI), standardised root mean square residual (SRMR) and root mean square error of approximation (RMSEA). A model with CFI and TLI values >.95 was interpreted as good fit model and CFI and TLI values >.90 was considered

Table 2. Bivariate correlations among the variables.

	2	3	4	5	6	7	8	9
1. Gratitude	−.170*	.135*	.430*	.471*	.504*	.456*	.093*	−.099*
2. Amotivation		.284*	−.221*	−.118*	−.101*	−.118*	−.039	.198*
3. Controlled motivation			.243*	.114*	.142*	.130*	−.038	.049
4. Autonomous motivation				.537*	.525*	.536*	.081*	−.091*
5. Cognitive engagement					.687*	.652*	.192*	.000
6. Emotional engagement						.874*	.167*	−.035
7. Behavioural engagement							.177*	−.021
8. Socioeconomic status								−.039
9. Gender								

*$p < .01$ level; gender (0 = female; 1 = male).

acceptable (Byrne, 2010). For RMSEA and SRMR, values below .08 were considered as acceptable (Byrne, 2010).

Results

Preliminary analysis

The bivariate correlations among students' gratitude, academic motivation, and engagement are shown in Table 2. All key variables except for amotivation were positively correlated with each other. Amotivation was negatively correlated with all other key variables except for controlled motivation.

SES was positively correlated with all engagement variables and autonomous motivation, but not with amotivation or controlled motivation. Males had higher levels of amotivation, but lower levels of gratitude and autonomous motivation.

### Confirmatory factor analysis

We conducted a CFA combining all key variables. After two pairs of meaningful covariances, the results indicated excellent model-data fit: RMSEA (95% C.I.) = .049 (.045, .042), SRMR = .032, CFI = .972, and TLI = .966. A structural equation model was then constructed by regressing the three engagement factors (cognitive, emotional and behaviours) on the three motivation factors (amotivation, extrinsic and intrinsic motivation) and gratitude, and by regressing the motivation factors on gratitude. All key variables were regressed on the covariates. The model fit the data excellently: RMSEA (95% C.I.) = .047 (.044, .050), SRMR = .031, CFI = .971, and TLI = .964.

Structural equation modelling

Figure 1 shows the results of SEM with covariates. The effect of gratitude on amotivation, extrinsic motivation and intrinsic motivation were β = −.15, .14, and .46, respectively, all significant at the $p < .001$ level.

Direct, indirect, and total effects

The direct effects of amotivation and extrinsic motivation on engagement variables were all nonsignificant. The direct effect of intrinsic motivation on cognitive, emotional and behavioural engagement were .50, .43, .41, respectively, all significant at $p < .001$.
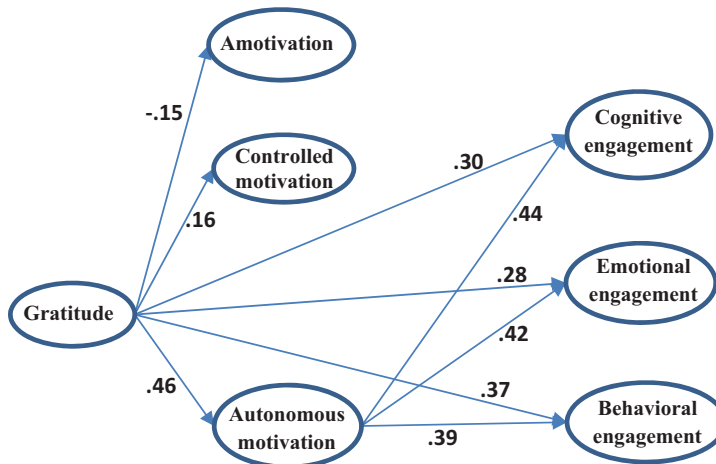
Figure 1. Relationships among gratitude, motivation, and engagement. *Note.* For brevity, the effects of covariates on key variables were not displayed in the diagram. All estimates presented are standardised and significant at $p < .05$.

The total effect of gratitude on cognitive engagement was $\beta = .50$, $p < .001$, 95% CI $= .44$, .55. The direct effect of gratitude on cognitive engagement was $\beta = .30$, $p < .001$, 95% CI $= .24$, .37. The indirect effect of gratitude through autonomous motivation was $\beta = 0.20$, $p < .001$, 95% CI $= .16$, .25.

The total effect of gratitude on emotional engagement was $\beta = .48$, $p < .001$, 95% CI $= .42$, .53. The direct effect of gratitude on emotional engagement was $\beta = .28$, $p < .001$, 95% CI $= .22$, .34. The indirect effect of gratitude through autonomous motivation was $\beta = 0.19$, $p < .001$, 95% CI$= .15$, .24.

The total effect of gratitude on behavioural engagement was $\beta = .54$, $p < .001$, 95% CI$= .49$, .60. The direct effect of gratitude on behavioural engagement was $\beta = .37$, $p < .001$, 95% CI $= .30$, .44. The indirect effect of gratitude through autonomous motivation was $\beta = 0.18$, $p < .001$, 95% CI$= .14$, .22.

Covariates

Males had lower levels of gratitude ($\beta = -.13$, $p < .001$) and higher levels of amotivation ($\beta = .19$, $p < .001$) and controlled motivation ($\beta = .09$, $p < .01$). Males also had higher levels of cognitive engagement ($\beta = .09$, $p < .01$) and emotional engagement ($\beta = .06$, $p < .05$). No significant gender differences were found in terms of behavioural engagement ($\beta = .03$, $p = .32$). Students with higher SES had higher levels of gratitude ($\beta = .10$, $p < .01$), cognitive engagement ($\beta = .13$, $p < .01$), emotional engagement ($\beta = .12$, $p < .01$), and behavioural engagement ($\beta = .08$, $p < .01$).

Discussion

The aim of this study was to test whether gratitude was associated with engagement and whether academic motivation mediated these associations. We have three key findings. First, gratitude was positively associated with both controlled and autonomous motivation but negatively associated with amotivation (partial support for H1).

Second, gratitude was directly associated with higher levels of cognitive, emotional, and behavioural engagement (confirming H2). Third, only autonomous motivation was found to be a partial mediator of gratitude's effects on engagement (partial support for H3). Amotivation and controlled motivation were not significantly associated with engagement. These results remained significant even after controlling for demographic factors such as gender and socioeconomic status.

Findings of this study enrich existing studies on gratitude. Past research on gratitude has mostly been confined to examining its association with well-being (Froh & Bono, 2011; Wood et al., 2010). Our research shows that gratitude is also positively associated with adaptive motivational states (i.e. autonomous motivation) and better engagement corroborating past studies (Armenta et al., 2022; Bono et al., 2020; King & Datu, 2018).

Grateful students are more likely to perceive schoolwork as an end in itself and as personally important. They are also more likely to work hard, enjoy the learning process, and use sophisticated cognitive strategies to master the materials. We found gratitude to be negatively associated with amotivation. Conversely, gratitude was positively associated with controlled motivation, autonomous motivation, and all forms of academic engagement. These associations partially supported H1 and H2. The only surprising finding was the positive correlation between gratitude and controlled motivation which contradicted our hypothesis.

Within SDT, controlled motivation is seen as a less healthy motivational state compared to autonomous motivation and these two constructs are negatively correlated with each other (Deci & Ryan, 2012). Research in Asian contexts, however, reveal that autonomous and controlled forms of motivation are highly correlated with each other (Caleon et al., 2015; King & Ganotice, 2014; King et al., 2018). In our study, these patterns were replicated as controlled and autonomous motivation were also positively correlated with each other.

This is perhaps due to the more interdependent nature of the self in Asian settings (King, 2017; Tao & Hong, 2014). For Asian students, wanting to do well in school to please their parents (a form of controlled motivation) can co-exist with the intrinsic pleasure of engaging in academic tasks (a form of autonomous motivation) because their sense of self is closely bound up with their relationships with their parents (King and Ganotice, 2015; King and McInerney, 2014; Tao & Hong, 2014). Hence doing well for the sake of one's parents is not necessarily antagonistic to studying for inherent enjoyment. In contrast, for Western students doing well for the sake of one's parents can be perceived as an external imposition. Asian students' sense of self is closely bound with their significant others and this can explain why controlled motivation is not necessarily associated with maladaptive outcomes among Asian students (King and McInerney, 2019; Tao & Hong, 2014).

We also found that gratitude was positively associated with all forms of academic engagement (i.e. cognitive, behavioural, and emotional) supporting H2. These results corroborate previous studies which showed that gratitude was associated with positive indices of academic functioning (Froh et al., 2011; Tian et al., 2016). Our research extends past studies which have usually highlighted gratitude's importance in well-being outcomes. The academic and well-being domains, however, are closely

interconnected (Kern et al., 2015), and gratitude might be key to healthy outcomes across both domains of functioning.

Furthermore, our mediational analysis indicated that only autonomous motivation mediated the effect of gratitude on academic engagement. Amotivation and controlled motivation did not mediate gratitude's effects. Hence, H3 was only partially supported. This partial mediation is in line with SDT's theoretical framework.

To reiterate, SDT assumes that individuals whose needs for competence, autonomy, and relatedness are more likely to have high levels of autonomous motivation. Perhaps, grateful individuals are more likely to have their basic psychological needs met which could explain their higher levels of autonomous motivation. For example, grateful students are more likely to enjoy positive social relationships (Lee et al., 2015), do better in school (Froh et al., 2011), and see their actions as self-endorsed (autonomy). Indeed, past studies have shown that a grateful disposition is positively associated with basic needs satisfaction (Lee et al., 2015; Tian et al., 2016). Future studies could include measures of basic needs satisfaction to provide stronger empirical evidence for this purported theoretical linkage.

Controlled and autonomous motivation are also activated by different psychological mechanisms and gratitude might be most strongly aligned with healthy forms of motivation (Wood et al., 2010). Amotivation and controlled motivation might be catalysed by a different set of theoretical mechanisms, such as parental and teacher pressure, competitive norms, neuroticism, and low ability beliefs among others (e.g. Cheon et al., 2016). This assumption is partly supported by past studies showing that amotivation, controlled motivation, and autonomous motivation are predicted by a distinct set of constructs (Komarraju et al., 2009).

We also comment on the effect sizes. The correlation between gratitude and motivational states ranged from $r = -.17$ for amotivation to $r = .43$ for autonomous motivation. The correlation of gratitude with different dimensions of academic engagement ranged from $r = .46$ to .50, demonstrating a medium effect size. These effect sizes are also in line with the effect size of other positive constructs such as positive emotions, life satisfaction, and well-being on psycho-educational outcomes. For example, a study by Diseth et al. (2012) found that the association between life satisfaction and motivation ranged from $r = .28$ to .44 (Diseth et al., 2012). In another study conducted by Mega et al. (2014) the correlation between positive emotions and motivational outcomes ranged from $r = .22$ to .51.

These effect sizes are also broadly similar to the effects attributed to personality traits such as the Big Five on school-related outcomes (Komarraju et al., 2009). For example, academic adjustment has been found to be positively correlated with conscientiousness ($r = .35$ $p < .05$) and negatively correlated with neuroticism ($r = -.25$, $p < .05$) (Kurtz et al., 2012). Research by Sorić et al. (2017) found that personality traits such as conscientiousness and emotional stability were also positively related to mastery-oriented motivation ($r = .29/.09$, $p < .05$) and negatively related to work-avoidant motivation ($r = -.24/-.14$, $p < .05$). More closely related to our research would be the study conducted by Cao and Meng (2020) which looked at the relationship between personality traits and English language motivation among Chinese university students. They found that personality traits such as conscientiousness ($r = .28$, $p < .05$),

neuroticism ($r = -.24$, $p < .05$), extraversion ($r = .40$, $p < .05$), agreeableness ($r = .32$, $p < .05$), and openness ($r = .36$, $p < .05$) were differentially associated with English learning motivation. Taken together, the effect sizes found for these studies on personality traits are comparable to what we found for gratitude.

The effect sizes for gratitude in the current study can be considered impressive given that gratitude was measured at a very general level, as a life orientation to noticing the positive in the world, while motivation and engagement were measured more narrowly and were specific to students' English language classes. Research typically shows that correlations are larger when the domains match (e.g. maths-related emotions related to maths-related motivation) and lower when one examines variables at different levels of generality (e.g. general personality traits and English language motivation) (Marsh & Shavelson, 1985).

Our study also enriches the motivational literature. Past studies on motivation and engagement which focused on the role of individual differences have mostly focussed on the role of the Big Five personality traits (Cao & Meng, 2020; Komarraju et al., 2009), cognitive ability (Kornilova et al., 2009), and need for achievement (Elliot et al., 2017) among others. To our knowledge, few studies have examined the role of gratitude as a life orientation in predicting motivation and engagement. Motivation and engagement are determined by several different factors. Given the increasing recognition of the importance of gratitude, research that links gratitude to learning-related outcomes is valuable.

Though our research relies exclusively on the survey method, our findings also have important implications for interventionist research on gratitude. There is an increasing recognition of the importance of improving gratitude among students. Hence, schools and universities have attempted to develop different types of gratitude programs for their students (National Association of School Psychologists, 2009). Researchers, however, have mostly focussed on the role of gratitude interventions in improving student well-being. Our study suggests that researchers might also need to examine whether and how gratitude interventions improve other school-related outcomes such as more adaptive motivation and engagement. Schools might want consider adopting gratitude programs to improve not only academic but also well-being outcomes.

For the covariates, females had higher levels of gratitude than males. This corroborates existing studies which showed slightly elevated levels of gratitude among females across a wide range of ages and across different cultural contexts (Kashdan et al., 2009; Tian et al., 2016). Males had lower autonomous motivation and higher amotivation. It seems then that males had a more maladaptive motivational profile than females. This corroborates past studies showing that girls generally have more positive school attitudes and do better in school overall compared to males (Voyer & Voyer, 2014).

In terms of socioeconomic status, higher SES students had higher levels of autonomous motivation and engagement (Chen et al., 2018). This is consistent with the literature on how higher SES students enjoy numerous educational advantages. Despite controlling for gender and SES effects, however, the role of gratitude in predicting motivation and engagement remained suggesting the robustness of its effects on key psycho-educational outcomes.

In this study, we explored motivation and engagement in L2 classes. One way for teachers to embed gratitude interventions in their L2 classes would be to use gratitude as a theme in students' writing exercises. For example, teachers can ask students to write a gratitude letter or write an essay about moments that made them feel grateful as part of their writing exercises to enhance L2 competencies. These less intrusive interventions may hold promise for integrating gratitude into teaching and learning settings. Social media can also be leveraged to promote gratitude interventions (e.g. Bono et al., 2020; Datu et al., 2022).

Limitations and directions for future research

Despite its strengths, we note a few limitations. First, our study is cross-sectional in nature. Hence, we cannot make causal conclusions. Future studies that use experimental or longitudinal designs are needed to gather stronger evidence about how gratitude is related to school outcomes. Second, all our measures were based on self-reported data which might be prone to common method bias leading to inflated parameter estimates (Podsakoff et al., 2003). Future studies that use multiple sources of data such as objective school grades or teacher ratings are needed to complement data obtained from self-report surveys. Third, we only examined motivation and engagement in the domain of second language learning. Hence, we remain unsure of whether the beneficial effects of gratitude would extend to motivation and engagement in other subjects. Fourth, our research was confined to university students in China. Future studies need to be conducted across different cultural contexts and different age groups to examine the generalisability of the findings. Fourth, gratitude is usually associated with a host of other positive constructs (e.g. positive emotions, self-esteem, life satisfaction) (Wood et al., 2010). In order to account for the unique effects of gratitude, studies can consider adding other positive psychological constructs to test the incremental predictive validity of gratitude over and above other positive psychological variables.

Conclusion

Our research shows that gratitude might also have important implications for learning-related outcomes. Grateful students experience more autonomous forms of motivation and are more engaged with their classes suggesting that, in the educational context, gratitude might indeed be its own reward.

This study has important theoretical implications as it extends what we currently understand about the nomological network of gratitude. Gratitude has most often been found to be associated with optimal well-being (Portocarrero et al., 2020; Wood et al., 2010). Our study demonstrated that aside from well-being, gratitude also has important implications for learning-related outcomes including students' motivation and engagement. Given the centrality of motivation and engagement to student learning and achievement (e.g. Elliot et al., 2017; Pintrich & De Groot, 2003), identifying potential facilitators of these optimal states would advance the educational literature.

Our research also has potential practical implications. Educators may want to use gratitude interventions and embed it into their classes. This can be done in several ways. For example, gratitude interventions can be offered as a standalone psycho-educational program (Chan, 2010) or it can also be embedded into the curriculum (Caleon et al., 2019). Although these interventions have primarily targeted the improvement of well-being, researchers and practitioners can also explore how they might be utilised for improving students' motivation and engagement.

Author contributions

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