Achievement Goal Orientations as Predictors of Self-Regulated Learning Strategies of International ESL Students

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As the number of enrolled international ESL students in the US institutions increases rapidly, it is important to understand these students' goal orientations and learning strategies in order to help them achieve the academic goals. Therefore, this study examines the relationship between achievement goal orientations and self-regulated learning strategies of 173 international ESL students in a large southeastern research institution in the US. Results indicate that approach goal orientations are positively associated with students' self-regulated learning, while avoidance goal orientations are negatively linked with their self-regulated learning. Additionally, international ESL students have a strong intention of learning a specific knowledge as well as showing competitiveness, and these motivations drive them to use various self-regulated learning strategies during the learning process.

The number of international students enrolled in higher education institutions in the US has increased rapidly. In 2015 to 2016, there were 300,741 international students enrolled in colleges in the US, and the top places of origin of those students are China (31.5%), India (15.9%), Saudi Arabia (5.9%), and South Korea (5.8%) ; other places include Vietnam (2.1%), Brazil (1.9%), Japan (1.8%), Mexico (1.6%), and Turkey (1%) (Opendoors, 2016). Among those international students, most of them are also English as a Second Language (ESL) learners. Therefore, challenges such as different cultures and language issues may influence their adaptation and involvement of the academic life in the US institutions (Lin & Wang, 2015).

Studies have explored international ESL students' achievement goal orientations and self-regulated learning strategies for the purpose of improving their academic performance. However, the majority of these studies investigated the aspects focusing on language learning courses, such as English reading or writing classes (Kim, Wang, Ann & Bong, 2015; Sadeghy & Mansourti, 2014; Zarei & Gilanian, 2014). Limited studies have explored college courses in their own majors. As a result, this study aims to investigate the relationship between international ESL students' achievement goal orientations and their self-regulated learning strategies during the learning process in their major college courses.

Literature Review

Achievement Goal Orientations Theoretical Framework

The achievement goal orientation (AGO) theory, which consists of mastery and performance goal orientations, has been widely used to explore the relationship between the orientations and students' academic achievement, adjustment, well-being, and engagement in their academic work (Ames, 1992; Anderman, 2015; Aspinwall & Taylor, 1997; Midgley, Arunkumar, & Urdan, 1996; Nurmi, Salmela-Aro, & Ruotsalainen, 1994). The mastery goal orientation is "a desire to develop competence and increase knowledge and understanding through effortful learning" (Murphy & Alexander, 2000, p. 28), and the performance goal orientation is "a desire to gain favorable judgments of one's competence" (Murphy & Alexander, 2000, p. 28).

Approach and avoidance motivations were later added on to mastery and performance goal orientations (Elliot & McGregor, 2001). A four-factor model of achievement orientations was proposed: mastery approach, mastery avoidance, performance approach, and performance avoidance (Figure 1). According to this 2 x 2 model of AGO, students with mastery approach goal orientation are interested in mastering an academic task, while students holding mastery avoidance goal orientation intend to avoid misunderstanding the academic task. Performance approach goal-oriented students prefer to demonstrate that they are more competent than their peers, whereas performance avoidance goal-oriented students are more interested in avoiding appearing more incompetent than other students. This model has been demonstrated to be a reliable and valid framework (Adesope, Gress, & Nesbit, 2008; Barron, Finney, Davis, & Owens, 2003; Gregg, Jenny, & Hall, 2016; Midgley, Kaplan, & Middleton, 2001).

Self-Regulated Learning

Self-regulated learning is identified as "the self-directive processes and self-beliefs that enable learners to transform their mental abilities, such as verbal aptitude, into an academic performance skill, such as writing" (Zimmerman, 2008, p. 166). Researchers further noted that self-regulated learning strategies involve setting specific goals, utilizing task strategies,

Figure 1

Mastery approach goal orientation (MAP); Mastery avoidance goal orientation (MAV); Performance approach goal orientation (PAP); Performance avoidance goal orientation (PAV). Adapted from "A 2x2 Achievement Goal Framework," by A. Elliot and J. McGregor, 2001, Journal of Personality and Social Psychology, 80, p. 502.

Definition

	Absolute/intrapersonal (mastery)	Normative (performance)
Valence — Positive (approaching success)	Mastery-approach goal	Performance-approach goal
Negative (avoiding failure)	Mastery-avoidance goal	Performance-avoidance goal

displaying high levels of self-efficacy and intrinsic interest, and self-monitoring and self-reflecting on performance outcomes (Zimmerman & Schunk, 2008). Similarly, Pintrich and Garcia (1991) described self-regulated learning as continuous adjustment of learners' cognitive activities and processes to the requirement of a specific learning situation.

Researchers consider self-regulated learners as active learners who always manage their learning experiences efficiently through various methods (Schunk & Zimmerman, 1994). These learners are also identified as autonomous, reflective, and efficient, and they have will and motivation to understand, direct, and control their own learning (Pintrich, 1999; Schunk & Zimmerman, 1994). They set specific learning goals that encourage them to work hard in order to reach these goals, and they modify learning strategies in response to shifting task demands (Butler & Winne, 1995; Pintrich & Garcia, 1991; Schunk, 1994; Zimmerman, 1989). Additionally, self-regulated learners are motivated, independent, and metacognitive, and they usually have a high-level academic performance (Zimmerman, 1990; Zimmerman & Martinez-Pons, 1986). They also actively manage their learning environment and resources during their learning process (Pintrich, 1999; Wolters, 1998).

A self-regulated learning conceptual framework comprised of various self-regulated learning strategies was developed by Pintrich and Garcia (1991) and Pintrich, Smith, Garcia, and McKeachie (1993). This framework aims to evaluate students' motivational orientations and their use of different learning strategies for any college course. Specifically, this model assesses students' use of cognitive and metacognitive strategies, as well as their management of various learning resources.

Cognitive strategies consist of Rehearsal, Elaboration, and Organization. Rehearsal strategies "involve the recitation of items to be learned or the saying of words aloud as one reads a piece of text" (Pintrich, 1999, p. 460), and these strategies assist learners to "select important information from lists or texts and keep this information active in working memory, albeit they may not reflect a very deep level of processing" (Pintrich, 1999, p. 460). Elaboration strategies refer to paraphrasing or summarizing the learning materials and reorganizing and linking ideas from the notes (Mousoulides & Philippou, 2005). Organization strategies involve behaviors such as "selecting the main idea from text, outlining the text or material to be learned, and using a variety of specific techniques for selecting and organizing the idea in the

material" (Pintrich, 1999, p. 460). These strategies would foster active cognitive engagement in learning and then lead to a high level of academic achievement (Weinstein & Mayer, 1986).

Metacognitive and self-regulated strategies are comprised of learners' planning, monitoring, and regulating activities (Zimmerman & Martinez-Pons, 1986, 1988). Learners who employ these types of strategies would often plan their use of cognitive strategies, monitor their thinking and behavior, and use regulating activities to adjust their study behaviors during the learning process.

Resource management strategies refer to how individuals establish conditions that would facilitate their learning (Pintrich & Garcia, 1991). These involve Time and Study environment (TE), Effort Regulation (Effort), Peer Learning (Peer), and Help Seeking (Help). TE refers to how learners manage their study time and learning environment. Effort indicates the degree of learners' commitment to achieving their study goals. Peer represents the frequency of collaborating with peers, and Help shows the frequency of asking classmates or instructors for help during the learning process.

Achievement Goal Orientations and Self-Regulated Learning of International ESL Students

International ESL students have become a special student group in US institutions. Many of them choose to study abroad because they are driven by motivations such as to get to know a different culture, to learn another language, or to access advanced knowledge and skills (Lin & Wang, 2015). Many previous studies noted that college students in the US institutions often adopt mastery approach and performance avoidance goal orientations (Remedios & Richardson, 2013). Similarly, several studies have identified that international ESL students studying in the US display both mastery and performance goal orientations, and they strive for excellence (Shi et al., 2001; Woodrow & Chapman, 2002). For example, Lou and Noels (2016) examined the goal orientations among 150 university-level students in language learning courses and revealed that international ESL students use both mastery and performance approach goal orientations. To be more specific, students who have a strong intention to learn the target language usually have a high level of mastery goal orientations.

Since self-regulated learning is considered to be a significant learner factor that explains both English language learning and academic achievements (Phakiti, Hirsh, & Woodrow, 2013), studies have explored international ESL students' self-regulated learning strategies in order to assist them to enhance their language learning and academic performance (Carrell, 1989; Goh, 2000; Hong-Nam & Leavell, 2006; Iwai, 2011). For instance, Goh and Foong (1997) noted that metacognitive strategies are used most frequently by international ESL students, while Rehearsal strategies are least used. Similarly, Poole (2005) indicated that international ESL students use cognitive and metacognitive strategies with a medium or high frequency.

Studies have also explored the relationship between achievement goal orientations and self-regulated learning among international ESL students. Duncan and McKeachie (2005) considered goal orientations to be one of the components of motivational self-regulated learning. Sadeghy and Mansouri (2014) indicated that self-regulated learning strategies are significantly associated with both master and performance goal orientations of ESL students. Specifically, Radosevich, Vandana, Yeo, and Deirdre (2004) investigated the relationship between goal orientations and language learning strategies among ESL learners, and they found that goal orientations are positively associated with cognitive self-regulated learning. Zarei and Gilanian (2014) further examined language learning strategies as predictors of achievement goal orientations of foreign language learners. Their results indicated that metacognitive strategies are correlated with mastery goal orientations and could predict approach goal orientations. In addition, social strategies are the best predictors of avoidance goal orientations.

Although international ESL students' achievement goal orientations and self-regulated learning have been investigated, most of these studies focus on their language learning. Therefore, the purpose of this study is to investigate international ESL students' achievement goal orientations and self-regulated learning strategies during their learning process in their major college courses, specifically the prediction power of achievement goal orientations on self-regulated learning strategies. The following research questions are addressed:

1. Which achievement goal orientations are better predictors of Rehearsal?
2. Which achievement goal orientations are better predictors of Elaboration?
3. Which achievement goal orientations are better predictors of Organization?
4. Which achievement goal orientations are better predictors of Metacognitive Self-Regulation?
5. Which achievement goal orientations are better predictors of Time and Environment?
6. Which achievement goal orientations are better predictors of Effort Regulation?
7. Which achievement goal orientations are better predictors of Peer Learning?
8. Which achievement goal orientations are better predictors of Help Seeking?

Methods

Participants

The sample of this study was students enrolled in a large southeastern research institution. Students who identified themselves as international students with English as their second language were collected while others were eliminated. A total number of 241 international ESL students participated in this research with 173 usable respondents (usable rate equals to 72%). Among the participants, 93 (63.3%) were male students and 54 (36.7%) were female students. Most of the participants were enrolled in either Master's programs (37.8%) or Doctoral programs (55.4%), and only 10 participants identified themselves as undergraduate students (6.9%). Additionally, 73% of the participants majored in STEM (science, technology, engineering, and math) fields, such as electronic engineering, math and statistics, and computer science, whereas 27% of the participants were in non-STEM fields, such as communication, finance, and education.

Instrument

Achievement Goal Questionnaire-Revised (AGQ-R). AGQ-R was invented by Elliot and McGregor (2001) and modified by Elliot and Murayama (2008). This instrument is comprised of 12 items with a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This study modified the 5-point Likert scale to a 7-point Likert scale in order to keep consistent with the MSLQ questionnaire. These 12 items aim to evaluate students' four achievement goal orientations: mastery approach (e.g., My aim is to completely master the material presented in this class), mastery avoidance (e.g., I am striving to avoid an incomplete understanding of the course material), performance approach (e.g., My aim is to perform well relative to other student), and performance avoidance (e.g., I am striving to avoid performing worse than others). The original Cronbach's alpha of achievement goal orientations ranges from 0.84 to 0.94 (Elliot & Murayama, 2008), and the Cronbach's alpha for achievement goal orientations in this study ranges from 0.62 to 0.88.

Motivated Strategies for Learning Questionnaire (MSLQ). The Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich and Garcia (1991) consists of 81 items with a 7-point Likert scale ranging from 1 (not at all true of me) to 7 (very true of me). The MSLQ instrument consists of 15 sections with Cronbach's alpha ranging from 0.52 to 0.93, and these sections are modular, so scholars are allowed to use sections together or individually. Therefore, based on previous literature and the research

questions of the study, eight sections of MSLQ were used: Rehearsal (e.g., When I study for this class, I practice saying the material to myself over and over), Elaboration (e.g., When reading for this class, I try to relate the material to what I already know), Organization (e.g., When I study the readings for this course, I outline the material to help me organize my thoughts), Metacognitive Self-Regulation (e.g., When reading for this course, I make up questions to help focus my reading), Time and Study environment (TE) (e.g., I usually study in a place where I can concentrate on my course work), Effort Regulation (Effort) (e.g., I work hard to do well in this class even if I don't like what we are doing), Peer Learning (Peer) (e.g., I try to work with other students from this class to complete the course assignments), and Help Seeking (Help) (e.g., I ask the instructor to clarify concepts I don't understand well). The Cronbach's alpha for those sections in this study ranges from 0.61 to 0.86.

Procedure

An electronic anonymous questionnaire was created and hosted by Qualtrics. Participants were requested to recall a college course they recently took in their major areas and rate their achievement goal orientation and self-regulated learning strategies they used for this course. The Graduate School, Multicultural Center, and International Student Organization assisted in sending the invitation emails with the link to the online survey to students who were enrolled in this university. Two reminders were sent after the initial invitation, with a total of three emails during the spring semester of 2016. Students were also instructed to ignore the survey reminders if they already completed it. This study was approved by the Institutional Review Board (IRB).

Data Analysis

Data was analyzed through the SPSS version 23. Outliers were deleted by examining through Mahalanobis Distance. Multiple regression was used to explore the research questions. The alpha level was set at p equals to 0.05.

Results

R1: Which achievement goal orientations are better predictors of Rehearsal?

A series of multiple regressions using stepwise procedure was conducted to investigate each research question. Results indicate that the level of mastery approach and performance approach goal orientations can predict the level of Rehearsal learning strategy used

$(F_{(2, 159)} = 24.5, p = .02)$. The linear combination of the level of mastery approach and performance approach goal orientations can be accounted by 24% of variance of the level of the Rehearsal learning strategy used ($R^2 = .24$). For every unit the level of mastery approach goal orientation increases, the level of the Rehearsal learning strategy used by students increases by 0.21 unit, whereas the level of performance approach goal orientation remains the same ($\beta = 0.21$, $t = 2.3$, $p < .001$). At the same time, for every unit the level of performance approach goal orientation increases, the level of the Rehearsal learning strategy used by students increases by 0.3 unit while the level of mastery approach goal orientation stays the same ($\beta = 0.3$, $t = 5.1$, $p < .001$). Both mastery approach and performance approach goal orientations have positive relationships with the Rehearsal learning strategy. Results show that students with a higher level of desire in mastering an academic task or in demonstrating that they are more competent than their peers often use memorized related study strategies. In other words, students who have a stronger desire to learn an academic task or to show that they are more competent than their classmates would often use strategies such as memorizing the terms or words by reading aloud in order to select important information from those lists or texts, and then they would keep this information active in working memory.

R2: Which achievement goal orientations are better predictors of Elaboration?

Results indicate that the level of both mastery approach and avoidance goal orientations are good predictors of the level of the Elaboration learning strategy used ($F_{(2, 157)} = 35.9$, $p < .001$). The linear combination of the level of mastery goal orientations can be accounted by 32% of variance of the level of the Elaboration learning strategy used ($R^2 = .32$). For every unit the level of mastery approach goal orientation increases, the level of the Elaboration learning strategy used by students will increase by 0.61 units when the level of mastery avoidance goal orientation stays the same ($\beta = 0.61$, $t = 8.3$, $p < .001$). For every unit the level of mastery avoidance goal orientation increases, the level of the Elaboration learning strategy used decreases by 0.13 unit while the level of mastery approach goal orientation remains the same ($\beta = -0.13$, $t = -2.6$, $p = .01$). Data shows that the mastery approach goal orientation has a positive relationship with Elaboration, while the mastery avoidance goal orientation has a negative relationship with this strategy. Students who have a higher level of desire in mastering an academic task would more often use strategies associated with paraphrasing or summarizing learning materials, while those who try to avoid misunderstanding an academic task are less often using these strategies.

R3: Which achievement goal orientations are better predictors of Organization?

Results show that only the level of mastery approach goal orientation can predict the level of Organization learning strategy used ($F_{(1, 157)} = 44.5$, $p < .001$). The linear combination of the level of mastery approach goal orientation can be accounted by 22% of variance of the level of Rehearsal learning strategy ($R^2 = .22$). Meanwhile, for every unit the level of mastery approach goal orientation increases, the level of Organization learning strategy used by students increases by 0.48 unit ($\beta = 0.48$, $t = 6.7$, $p < .001$). Mastery approach goal orientation is positively associated with the Organization learning strategy. Results note that students who have a higher level of desire in mastering an academic task more often use learning strategies such as selecting main ideas from text, outlining the text or material to be learned, and using various specific techniques for selecting and organizing ideas in the material.

R4: Which achievement goal orientations are better predictors of Metacognitive Self-Regulation?

Results reveal that the level of mastery approach and avoidance goal orientations can predict the level of the Metacognitive Self-Regulation learning strategy ($F_{(2, 159)} = 38.8$, $p < .001$). The linear combination of the level of mastery goal orientations can be accounted by 31% of variance of the level of this learning strategy used ($R^2 = .31$). For every unit the level of mastery approach goal orientation increases, the level of Metacognitive Self-Regulation learning strategy used by students increases by 0.47 unit when the level of mastery avoidance goal orientation remains the same ($\beta = 0.47$, $t = 8$, $p < .001$). At the same time, for every unit the level of mastery avoidance goal orientation increases, the level of the Metacognitive Self-Regulation learning strategy used by students decreases by 0.08 unit while the level of mastery approach goal orientation stays the same ($\beta = 0.08$, $t = -2$, $p = .04$). Data shows that the mastery approach goal orientation has a positive relationship with the Metacognitive Self-Regulation learning strategy while mastery avoidance goal orientation is negatively associated with this strategy. Students who have a higher level of desire in mastering an academic task more often use strategies such as planning their use of cognitive strategies, monitoring their thinking and behavior, and using regulating activities to adjust their study behaviors during the learning process while those who desire to avoid misunderstanding an academic task less often use these learning strategies.

R5: Which achievement goal orientations are better predictors of Time and Environment

According to the results, the level of mastery approach and performance avoidance goal orientations can predict the level of Time and Environment (TE) strategy ($F_{(2, 159)}$ = 11.5, p < .001). The linear combination of the level of these two orientations can be accounted for by 13% of variance of the level of TE strategy (R^2 = .13). For every unit the level of mastery approach goal orientation increases, the level of TE strategy used by students increases by 0.31 units, whereas the level of performance approach goal orientation remains the same (β = 0.31, t = 4.5, p < .001). Additionally, for every unit the level of performance avoidance goal orientation increases, the level of TE strategy used by students decreases by 0.12 unit while the level of the mastery approach goal orientation stays the same (β = -0.12, t = -3.2, p = .002). Data display that the mastery approach goal orientation is positively associated with TE strategy while performance avoidance goal orientation has a negative relationship with this strategy. Results reveal that students who have a stronger desire in mastering an academic task more often manage their study time and learning environment while those who prefer to avoid showing that they lack the skills in learning the course less often manage their study time and learning environment.

R6: Which achievement goal orientations are better predictors of Effort Regulation

Results indicate the level of mastery approach and performance avoidance goal orientations can predict the level of Effort Regulation (Effort) strategy used ($F_{(2, 159)}$ = 10.5, p < .001). The linear combination of the level of these two orientations can be accounted for by 12% of variance of the level of the Effort strategy (R^2 = .12). For every unit the level of mastery approach goal orientation increases, the level of Effort strategy increases by 0.32 unit, whereas the level of performance avoidance goal orientation remains the same (β = 0.32, t = 3.7, p < .001). Meanwhile, for every unit the level of performance avoidance goal orientation increases, the level of Effort strategy used by students decreases by 0.2 unit when the level of mastery approach goal orientation stays the same (β = -0.2, t = -4, p < .001). Results show that the mastery approach goal orientation has a positive relationship with Effort strategy while performance avoidance goal orientation is negatively associated with this strategy. Students who have a stronger desire to master an academic task often have a higher level of commitment to achieving their study goals while students who try to avoid showing that they lack the skills in learning the course have a lower level of commitment to accomplishing their study goals.

R7: Which achievement goal orientations are better predictors of Peer Learning?

Results imply that the level of both mastery approach and performance approach goal orientations can predict the level of Peer Learning (Peer) strategy ($F_{(2, 156)}$ = 13, p < .001). The linear combination of the level of mastery approach and performance approach goal orientations can be accounted by 15% of variance of the level of Peer strategy used (R^2 = .15). For every unit the level of mastery approach goal orientation increases, the level of Peer strategy used by students increases by 0.34 unit, whereas the level of performance approach goal orientation remains the same (β = 0.34, t = 3, p < .001). For every unit the level of performance approach goal orientation increases, the level of Peer strategy used by students increases by 0.19 unit while the level of mastery approach goal orientation stays the same (β = 0.19, t = 2.6, p < .001). Both mastery approach and performance approach goal orientations are positively associated with Peer strategy. Results show that students who have a stronger desire in mastering an academic task, or those who prefer to demonstrate that they are more competent than their classmates, more often use strategies such as collaborating with their peers during learning.

R8: Which achievement goal orientations are better predictors of Help Seeking?

Results show that only the level of mastery approach goal orientation can predict the level of Help Seeking (Help) strategy ($F_{(1, 158)}$ = 13, p < .001). The linear combination of the level of mastery approach goal orientation can be accounted by 10% of variance of the level of Rehearsal learning strategy used (R^2 = .10). Additionally, for every unit the level of mastery approach goal orientation increases, the level of Help strategy used by students increases by 0.25 unit (β = 0.25, t = 3.6, p < .001). Data notes that mastery approach goal orientation has a positive relationship with Help strategy. Results demonstrate that students with a stronger desire in mastering an academic task prefer asking their classmates or instructors for help during the learning process.

Discussion

This study indicates that approach goal orientations are positively associated with self-regulated learning strategies while avoidance goal orientations are negatively associated with self-regulated learning strategies. To be more specific, mastery approach goal orientation predicts all self-regulated learning strategies. International ESL students use various learning strategies during the learning process because

Table 1
Multiple Regression Results

Research Questions	DV	R^2	F	df	p	Predictors	β	t	p
R1	Rehearsal	0.24	24.5	2,159	<.001	MAP	0.21	2.3	0.02
						PAP	0.3	5.1	<.001
R2	Elaboration	0.32	35.9	2,157	<.001	MAP	0.61	8.3	<.001
						MAV	-0.13	-2.6	0.012
R3	Organization	0.22	44.5	1,157	<.001	MAP	0.48	6.7	<.001
R4	Metacognitive Self-regulation	0.31	34.8	2,159	<.001	MAP	0.47	8	<.001
						MAV	-0.08	-2	<.001
R5	Time and Environment	0.13	11.5	2,159	<.001	MAP	0.31	4.5	<.001
						PAV	-0.12	-3.2	0.002
R6	Effort Regulation	0.12	10.5	2,159	<.001	MAP	0.32	3.7	<.001
						PAV	-0.2	-4	<.001
R7	Peer Learning	0.15	13	2,156	<.001	MAP	0.34	3	0.003
						PAP	0.19	2.6	0.01
R8	Help Seeking	0.1	13	1,158	<.001	MAP	0.25	3.6	<.001

MAP: Mastery approach goal orientation; MAV: Mastery avoidance goal orientation;
PAP: Performance approach goal orientation; PAV: Performance avoidance goal orientation.

they may desire to seek specific knowledge or skills. These findings echo previous studies indicating that international students studying abroad prefer to learn advanced knowledge and skills (Lin & Wang, 2015). Another possible reason for international ESL students to try hard to succeed is because they do not want to disappoint their families since sending a child to study abroad would be a big economic effort for many families. More research should be investigated regarding this hypothesis. Besides, mastery avoidance goal orientation is significantly linked to students' use of self-regulated learning, and this result mirrors previous studies that both mastery approach and avoidance goal orientations are associated with self-regulated learning strategies (Zarei & Gilanian, 2014). However, international ESL students who have a high level of mastery avoidance goal orientation often less frequently use self-regulated learning strategies such as Elaboration and Metacognitive Self-Regulation, while these strategies were considered to be deep-processing learning strategies (Pintrich, 1999). As a result, this finding indicates that some international ESL students intend to avoid making mistakes when learning and applying specific knowledge, whereas this intention demotivates them to use deep self-regulated learning strategies.

Besides mastery goal orientations, performance goal orientations influence international ESL students' adoption of self-regulated learning. Results of Effort Regulation show that performance avoidance goal orientation significantly correlates with international ESL students' commitment to completing their study goals. Especially, students who try to avoid being considered as lacking the skills of learning specific knowledge are less committed to achieving their study goals. Similarly, those who hold this goal orientation spend less time on learning and managing their study environment. On the contrary, performance approach goal orientation is positively linked to international ESL students' use of self-regulated learning strategies, such as Rehearsal. Contrary to previous studies that social strategies are associated with avoid goal orientations (Zarei & Gilanian, 2014), this study argued that Peer Learning is positively correlated with performance approach goal orientation. In other words, students who try to show that they are more competitive than their peers are willing to study with their classmates more often.

In conclusion, the findings of this study illustrate that both mastery and performance goal orientations influence international ESL students' self-regulated learning. Similar to conclusions that ESL learners have

a strong intention to learn the target language in a language course (Lou & Noels, 2016), international ESL students were found to have a strong intention to learn the target knowledge in their major college courses in this study. Moreover, it is possible that international ESL students are often influenced by peer pressure as they may try to keep a good image in front of their classmates. They intend to show that they are more competitive than others, and this desire motivates them to collaborate with their peers more often. However, their intention of avoiding being considered noncompetitive reduces their commitment level of achieving study goals, as well as demotivating them to spend more time on studying during the learning process. More research is needed to investigate whether peer pressure contributes to international ESL students' use of self-regulated learning strategies.

Implications and Limitations

According to the findings, both mastery and performance goal orientations are linked with international ESL students' use of self-regulated learning regarding learning college courses in their majors. Specifically, approach goal orientations would motivate these students' self-regulated learning, while avoidance goal orientations demotivate them to adopt self-regulated learning strategies. Therefore, in order to enhance international ESL students' motivations to seek knowledge and then to further encourage them to use deep learning strategies more often, instructors should consider informing them of the meaningfulness of learning a course in the first class. Additionally, for international ESL students who are willing to take responsibility for their own learning, direction, and productivity, as well as planning their study time to accomplish their study goals, instructors should consider cultivating their ability to learn. For example, instructors may consult with these students to develop their learning materials and strategies such as timetables and management charts for projects they develop. Instructors may also consider meeting with these students regularly to discuss their progress and difficulties during the learning process. Collaboration and competition would positively raise international ESL students' motivations for learning since they enjoy working with their classmates, as well as being considered competitive. Therefore, instructors may consider assigning group activities or team work projects to encourage collaborations. Additionally, a proper use of competition in class, e.g., trivia contests and other short-term competitions, would be effective in enhancing these students' learning interests for a solely symbolic reward, and there can be lighthearted challenges between groups where there is no reward. However, instructors should plan any competition activities carefully and properly to avoid demotivating students.

Several limitations existed in this study. First, this study centered on a self-reported questionnaire which relies on the honesty of the participants, and some participants may lack the introspective ability to provide an accurate response to a question. However, outliers were examined and deleted, and the Cronbach's alpha shows the reliability of the data. Yet, future research should involve qualitative studies such as focus groups or interviews to further investigate these two components, and results may serve as evidence or arguments about the current study. Second, the majority of the participants were enrolled in graduate programs, hence results may not represent undergraduate international ESL students' achievement goal orientations and self-regulated learning. Similarly, since most of the participants were male students and many participants were studying in STEM areas, bias may exist, and results may not properly reflect the perspectives of female international ESL students, as well as those majoring in non-STEM fields. Additionally, information was gathered from participants in a large southeastern research university, therefore data may not represent all international ESL students in the US institutions. As a consequence, more students from different programs and universities should be recruited. Finally, factors such as gender and degree-seeking programs should be included for the purpose of examining the differences in achievement goal orientation and self-regulated learning among international ESL students, in order to better understand and serve this growing student group, as well as helping them enhance their academic performance.

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