Quantitative research on online English learning motivational regulation strategies of undergraduate English majors

Gongwei Guo[1,a], Zhaoqi Tang[2,b]

[1]School of Foreign Languages Northeast Normal University, Changchun, China

[2]School of English Studies Dalian University of Foreign Languages Dalian, China

[a]e-mail: guogw115@nenu.edu.cn, [b]e-mail: tangzq922@nenu.edu.cn

Abstract. The abrupt emergence of COVID-19 pandemic forced college students around the world to move courses online. Without timely monitoring or assistance offered by their teachers, some students may easily distract or may not motivate themselves when they are not willing to study. The purpose of this quantitative research is to explore whether there are significant differences between motivational regulation strategies (MRSs) used in the online learning context and different genders and grades of 224 undergraduate English majors in a certain university located in Changchun, China. The general level of MRSs used by those participants was high (M=157.35). The potential differences were proved by the quantitative data analysis. Through independent-sample t test, the research revealed that significant differences exist between MRSs and different genders. Specifically speaking, females used more MRSs than males. Also, significant differences could be seen from the following four factors of MRSs: regulation of mastery goals, regulation of situational interest, environmental structuring, and regulation of value. In addition, the result of analysis of variance showed that there were no significant differences between used MRSs and learners of different grades. It meant that most students still made their efforts to keep in line with what they had learned in the online learning text. Implications of this quantitative research are as follow. First, teachers would have a general view of MRSs used by their students so that they could adjust their teaching plans to make the most of their MRSs. Second, teachers could also turn to similar techniques provided by MRSs to encourage students in the online learning context.

keywords: motivational regulation strategies; online English learning; undergraduate English majors; quantitative research

1.   Introduction

Motivational regulation strategies (MRSs) usually refer to "students' attempts at engaging and then regulating cognitive or metacognitive strategies" [1]. A series of studies exploring MRSs have been conducted since the late 1990s, with a focus on high school students in America [2][3]. Gradually, the focus of participants in research on MRSs shifts from high school students to groups at other learning stages in other countries [4][5]. However, most of researchers choosing high school students as participants in their research on MRSs. Undergraduates have similar even more available time and diverse goals compared with high school students because the "ultimate" goal of most high school students is to be admitted to their dreamy colleges or universities. Also, some college students may be disgusted by studying under high pressure they had experienced when they were high school students. Therefore, it is a must to explore the level of MRSs used by undergraduates in China.

In addition, online learning has become a normal way of learning since COVID-19 suddenly outbroke in 2020. Till today, the pandemic still outbreaks sporadically in some places. Therefore, under the background of Emergency Remote Teaching (ERT), it is acknowledged that online learning would be a brilliant choice driven by the increasing development of information technology [6][7]. However, the loneliness triggered by the online learning context would make English as a foreign language (EFL) learners less motivated, result in demotivation, and even deteriorate their mental health [8][9]. Indeed, most MRSs-related research put more emphasis on learners' MRSs in the offline context [10][11][12][13][14], while insufficient attention has been paid to the learner's MRS when they take online courses on an on-going basis. Also, some scholars

have pointed out that learners' motivational regulation in the online context has become an appealing topic which cannot be ignored [15][16][17]. Therefore, it is worthwhile that more attention should be paid to undergraduate English majors in the online learning context.

Given the eye-catching topic of MRSs and unique characteristics of online learning and research participants, we decided to collect data from learners in the new online environment to clarify the relation between MRSs and different genders and grades of college students when they have to study online, which would provide empirical evidence for foreign language learning and teaching.

2. Literature review

2.1 Wolter's Motivational Regulation Strategies

Learning motivation can be regarded as an engine for (second/foreign) language acquisition (SLA/FLA). Wolters initially used an open-ended questionnaire to explore 115 college students' strategies for regulating motivation and then he adopted a closed-ended questionnaire to summarize those strategies into the following five dimensions: mastery self-talk, performance self-talk, interest enhancement, environmental control, and self-consequating [1][2]. Wolters' classification of MRSs had been proved to be effective in the cross-cultural context for better discriminant and convergent validity [4][18]. Due to dynamic changes of learning, Wolters and Benzon also refined the proposed classification by adding a new dimension called "regulating of value" [12].

2.2 Motivational Regulation Strategies in English as an Foreign Language Context

Previous research has made it abundantly clear that the use of MRSs is directly related to different variables in the EFL context. On the one hand, many researchers discovered different genders and majors are two prominent influencing factors. Studies revealed that there were differences between males and females and between different majors when it came to the use of MRSs [13][19][20]. Alotumi conducted a survey study choosing 300 EFL college students, partly exploring differences between the students' performance of spoken English and their different genders under the intervention of MRSs. He found that' gender had a small but non-negligible effect on their performance in spoken English [20]. Therefore, gender has been chosen as a variable in this quantitative research.

In addition to exploring the influencing variables of MRSs, researchers also have pointed out how MRSs make a difference to EFL learners. Many of them explored how learners' MRSs contributed to their academic success. Overall, MRSs have significant positive indirect effects on learners' academic performance and learners' achievement and they also found that both academic performance and learners' achievement are greatly driven by MRSs instead of motivation itself [21][22][23]. As in [22], part of the influencing mechanism was achieved via performance self-talk and academic procrastination [22]. Furthermore, one thing that deserves to be mentioned here is that gender sometimes plays a role of moderator between learners and the level of MRSs used by them. Schwinger and Otterpohl found that gender moderated the level of certain MRSs not all used by learners [24].

With more and more research pushing toward English study in SLA/FLA, researchers also clarified that MRSs were related to some specific language skills. Applying MRSs to writing, Teng and Zhang investigated MRSs experienced by 512 Chinese undergraduate students and then proposed five types of MRSs specialized in writing based on Wolters' classification [25]. Considering the EFL learning context, Chinese researchers also extracted another five types of MRSs to better explain MRSs used by Chinese students, among which the metacognitive dimension was not involved by foreign scholars [26]. And more culture-related factors should be included into MRSs [13]. Another research on MRSs showed that high-proficiency writing EFL learners would motivate themselves by triggering more MRSs than low-proficiency learners and the former used MRSs more flexibly than the latter [27]. The result of an MRSs-related research on speaking skills is similar to the listening one [20].

3. Method

3.1 Resarch Participants

The participants were 224 undergraduate English majors, including 49 males and 175 females, in a university located in Changchun. The city was attacked by the pandemic in March, 2022, which pushed all college students to study online. Due to the abrupt emergence of the pandemic, choosing participants by convenience sampling, had to be suspended for the health and safety reason. Therefore, students in nine classes of three grades volunteered to be participants, including 80 freshmen, 70 sophomores and 74 juniors, without face-to-face contact. Undergraduates in the senior grade had been excluded from this research due to the following reasons. First, the number of undergraduates in the senior grade was awfully less than other grades, that is only approximately 140 students in the senior grade while 190 or so students in other three grades respectively. Second, undergraduates in the senior grade only take one or two lessons a week. Compared with undergraduates in other three grades, they may just focus English learning on some specific fields, such as how to teach English, which is a little off-topic from this quantitative research (English learning), or spend less time on online English learning. In addition, most of them were busy preparing for the national entrance examination for postgraduate or looking for jobs.

3.2 Instrument

The MRSs scale developed by Wolters and Benzon was utilized to collect data [12]. It is a 7-point Likert scale ranging from 1 point (strongly disagree) to 7 point (strongly agree). The scale includes 30 items clustered into 6 factors: regulation of value, regulation of performance goals, self-consequating, environmental structuring, regulation of situational interest, and regulation of mastery goals.

Items were translated into Chinese to ensure a better understanding of the questionnaire due to grade differences, although participants of this research are undergraduate English majors. It meant every item consists of the original version and the Chinese version. Before collecting a large sample, some different-proficiency students in different grades had been asked to complete the original questionnaire to figure out whether the items' translation (the accuracy and appropriateness of Chinese expressions) was appropriate for participants. Minor modifications to items' expressions were made according to their feedback.

3.3 Research questions

By adpoting the quantitative method, this research was guided by the following two questions:
(1) What is the level of MRSs used by undergraduate English majors in the online learning context?
(2) Is there any difference between MRSs used by undergraduate English majors and different genders and grades? If yes, which aspect(s) could difference(s) be found?

3.4 Data Collection

Questionnaires were distributed via an online application to abide by regulations to protect people from the pandemic. Participants were guided how to fill in the questionnaire before they scanned the quick-response code conveying the content of the questionnaire. With 250 questionnaires returned, 23 questionnaires had to be removed in the initial analysis because some students left out key items such as gender and grade, ticked the same choice in one questionnaire, or did not complete the questionnaire. 227 questionnaires were tagged as initial-effective questionnaires and they could be analyzed further in this research.

3.5 Data Analysis

227 questionnaire data were put into SPSS22.0 for further data analysis. 3 questionnaires were removed because they were found to be duplicate cases. In the end, 224 questionnaire data were

utilized in the research. The test reliability (Cronbach's α= .922) was high. Through the confirmatory factor analysis (clustering 30 items in this questionnaire in 6 factors), the factor load coefficient of every factor was above 0.5, which can be used for further analysis. Independent-sample t test and variance analysis were used to explore the differences between MRSs and gender and grade respectively. Therefore, the degree of every difference could be analyzed and the nuanced differences could be visualized through data.

4. Results and disscussion

4.1 The General level of Motivational Regulation Strategies Used and the Differences Between the Level and Different Genders and Grades Respectively

As Table Ⅰ shows, when undergraduate English majors study English in the online learning context, levels of MRSs used range from 101.00 to 186.00 (M=157.35, SD=17.97), which indicates that the general level of MRSs used is relatively high and there are huge differences in MRSs used among different participants.

Independent-sample t test and variance analysis are used to explore whether there are differences between MRSs used and different genders and grades respectively. As is shown in Table Ⅱ and Table Ⅲ, significant differences can be seen between the general level of MRSs used and different genders (p<0.01); however, negligible differences are revealed between the general level of MRSs used and different grades (p=0.562).

These findings in this quantitative research are highly in line with some findings of previous studies in the face-to-face teaching and learning context, such as [13], that is significant differences in the general level of MRSs used can be found between male and female undergraduates. However, in this study, the notable finding is that there is no significant difference between the level of MRSs used by undergraduate English majors and their grades, which is not consistent with some previous studies [19][20].

Perhaps the following reasons can be used to explain the gap. First, English majors have to study English thoroughly instead of just learning how to speak or how to write. This study explores the level of MRSs on English learning used by undergraduate English majors in the online learning context instead of just focusing on part of language skills. Some students may behave differently to motivate themselves towards part of language skills; however, differences may become negligible when they study all language skills of English. Second, online learning has its own limitations, such as less timely monitoring from teachers, peer encouragement or competition, and other distractions disturbing students' attention. The online learning proposes higher demands for their learning. Therefore, they have to push themselves intensively and use every method they can to motivate themselves in case they will fall behind others or even get scores that are less than 60 or an F in their examinations. Third, these research do not use the same questionnaire to explore students' MRSs. It is clear that different questionnaires reflect different understanding of MRSs; however, they were not controversial in terms of the core element of MRSs. Also, these research have been conducted in different cultural contexts, so some inconsistency in findings are accepted.

4.2 The Differences Between Genders and Every Factor of Motivational Regulation Strategies

Another independent-sample t test is used to further explore the differences between male and female undergraduate English majors in the aspect of using MRSs. Specifically speaking, there lies significant differences in the following four factors: regulation of mastery goals, regulation of situational interest, environmental structuring, and regulation of value (seen in Table 4), among which the most significant difference is manifested in environmental structuring (t=-11.289, p<0.01). However, male and female undergraduate English majors are approximately on the same

level in terms of self-consequating and regulation of performance goals (p>0.05). Compared with regulation of performance goals used by undergraduate English majors (p=0.274), there are more minor differences in self-consequating (p=0.599).

Table 1.Eneral level of motivational regulation strategies used

Min	Max	M	SD
101.00	186.00	157.35	17.97

Table 2. He differences between the generla level of motivational regulation strategies used and different genders

	gender (M±SD)		t	p
	male (n=49)	female (n=175)		
general level	136.88±15.29	163.08±14.08	-11.298	0.000**
* p<0.05 ** p<0.01				

Table 3.He differences between the generla level of motivational regulation strategies used and different grades

	grade (M±SD)			F	p
	freshman (n=80)	sophomore (n=70)	junior (n=74)		
general level	156.47±18.57	156.40±19.04	159.19±16.28	0.578	0.562
* p<0.05 ** p<0.01					

Table 4.The differences between genders and every factor of t motivational regulation strategies

factors	gender (M±SD)		t	p
	male (n=49)	female (n=175)		
regulation of mastery goals	4.28±1.12	5.58±0.67	-7.779	0.000**
regulation of situational interest	4.29±1.13	5.66±0.49	-8.284	0.000**
environmental structuring	4.13±1.02	5.84±0.53	-11.289	0.000**
self-consequating	4.87±1.22	4.97±0.65	-0.529	0.599
regulation of performance goals	4.69±1.21	4.89±0.60	-1.106	0.274
regulation of value	4.95±1.21	5.71±0.71	-4.170	0.000**
* p<0.05 ** p<0.01				

Environmental structuring "reflects students' expressed efforts to control aspects of their physical or personal context" [12]. This research finds that not only there are significant differences in environmental structuring between males and females, but also the average level of MRSs used by females (M=5.84) is higher than that by males (M=4.13). Compared with classrooms in the traditional teaching and learning context, the online learning context is more like to vary in light of individual differences. For example, the poor-quality Internet connection leads to some students being frozen for seconds or minutes, which is a common headache for those students who take online courses. Also, suffering from terrible noise or other uncontrollable factors, some students have to change places to take classes. This finding is a reflection that gender is a major influencing

factor in choosing strategies to study (Oxford & Nyikos, 1989) and females are more adept at using different strategies to motivate themselves when facing some tough learning situations or aiming at achieving a goal.

Self-consequating refers to "students' reported use of self-provided rewards for pushing themselves to complete their coursework" [12]. In this quantitative research, the average level of MRSs used by male undergraduate English majors (M=4.87) and female ones (M=4.97) is approximately at the same level, indicating that they all behave approximately the same when using rewards to motivate themselves in the online learning context (p=0.599). The reason for the appropriately same level between male undergraduate English majors and female ones in the environmental structuring dimension is that they all need something to motivate themselves in the process of studying when they are thrown into some tough situations. Specifically speaking, it can be said that there are few or no college students who want to get an F or leave a pile of assignments, which perhaps, in turn, demotivate them. In addition, many of them would be attacked by changing situations in the online learning context or even by negative emotions if they would have been quarantined However, they have to combat those headaches by motivating themselves so that they are possible to complete their tasks or even achieve their goals. One of the easiest and most effective strategies to cheer themselves up in the online learning context is to reward themselves to offset negative feelings or events experienced in a special situation. Therefore, the negligible difference is reasonable in this dimension.

5. Conclusion

This quantitative study investigated 224 college students in China and found that there were huge differences between the level of MRSs used and students of different genders; however, differences between the level and students of different grades were not significant. Exploring those differences further, it was clear that they were manifested in environmental structuring, regulation of situational interest, regulation of mastery goals, and regulation of value (presented in descending order). As for another two factors of MRSs (self-consequating and regulation of performance goals), differences between male undergraduate English majors and female ones were negligible.

The implications of this research are as follows. First, it may provide some insights for teachers so that they could use some similar strategies to motivate their students. Second, the research depicts an overview of students' online learning MRSs used to their teachers. According to the result and practical situation, teachers may change their teaching design to match it with MRSs used by students and then mitigate anxiety or other negative emotions brought by the online learning. Besides, there are also some limitations in this research. More male participants should be selected for the research so that it can deliver more comprehensive research results. Also, this quantitative research found that students of different grades behaved approximate the same on MRSs used; therefore, conditions permitting, researchers could use interview to figure the reason for it. In addition, if possible, comparative research on online learning MRSs used and traditional learning MRSs used is needed, which may throw light on how to conduct blended teaching.

Acknowledgment

References

[1] C. Wolters, "Self-regulated learning and college students' regulation of motivation,". Journal of Educational Psychology, vol. 90, Jun. 1988, pp. 224-235, doi:10.1037/0022-0663.90.2.224

[2] C. Wolters, "The relation between high school students' motivational regulation and their use of learning strategies, effort, and classroom performance", Learning and Individual Differences, vol. 11, Jun. 1999, pp. 281-299, doi:10.1016/S1041-6080(99)80004-1.

[3] C. Wolters and H. Rosenthal, "The relation between students' motivational beliefs and their use of motivational regulation strategies", International Journal of Educational Research, vol. 33, Dec. 2000, pp. 801-820, doi:10.1016/S0883-0355(00)00051-3

[4] M. Schwinger, T. Laden, and B. Spinath, "Motivational regulation strategies and their measurement", German Journal of Developmental and Educational Psychology, vol. 39, Apr. 2007, pp. 57-69. doi:10.1026/0049-8637.39.2.57

[5] S. Park, "Validation of motivational regulation strategies for Korean elementary, middle, and high school students", Asia-Pacific Education Researcher, vol. 31, Mar. 2021, pp. 269-283, doi:10.1007/S40299-021-00558-W

[6] Y. Li and J. Zhou, "Learners' self-regulation in online English learning", Foreign Languages and Their Teaching, vol. 37, Oct. 2020, pp. 45-54+149, doi: 10.13458/j.cnki.flatt.004712

[7] X. Luo, W. Ma, and Y. Yao, "A practical research of online teaching of college English after the outbreak of COVID-19 pandemic: problems, measures and effects", Technology Enhanced Foreign Language Education, vol. 42, Jun. 2020, pp. 30-35+5.

[8] M. Wilczewski, O. Gorbaniuk, and P. Giuri, "The psychological and academic effects of studying from the home and host country during the COVID-19 pandemic", Frontiers in Psychology, vol. 12, Apr. 2021, doi:10.3389/fpsyg.2021.644096

[9] M. Gaeta, L. Gaeta, and M. Rodriguez, "The impact of COVID-19 home confinement on Mexican University students: emotions, coping strategies, and self-regulated learning", Frontiers in Psychology, vol. 12, Apr. 2021, doi:10.3389/fpsyg.2021.642823

[10] K. Li, "A study on motivational regulation strategies of Chinese EFL college students", Modern Foreign Languages, vol. 32, Aug. 2009, pp. 305-313+330.

[11] M. Schwinger and J. Stiensmeier-Pelster, "Effects of motivational regulation on effort and achievement: A mediation model", International Journal of Educational Research, vol. 56, Dec. 2012, pp. 35-47, doi:10.1016/J.IJER.2012.07.005

[12] C. Wolters and M. Benzon, "Assessing and predicting college students' use of strategies for the self-regulation of motivation", Journal of Experimental Education, vol. 81, Jan. 2013, pp. 199-221, doi:10.1080/00220973.2012.699901

[13] Y. Gao and H. Liu, "An empirical study on second language motivational regulation strategies of non-English majors", Journal of PLA University of Foreign Languages, vol. 37, Apr. 2014, pp. 33-42.

[14] L. Hui, S. Ma, and F. Du, "Influencing mechanism of motivation regulation, metacognition and cognition on college students' English achievements", Journal of Xi'an International Studies University, vol. 25, Dec. 2017, pp. 54-57, doi:10.16362/j.cnki.cn61-1457/h.2017.04.011

[15] S. Park and H. Yun, "The influence of motivational regulation strategies on online students' behavioral, emotional, and cognitive engagement", American Journal of Distance Education, vol. 32, Jan. 2018, pp. 43-56, doi:10.1080/08923647.2018.1412738

[16] C. Graham, J. Borup, E. Pulham, and R. Larsen. "K–12 blended teaching readiness: model and instrument development". Journal of Research on Technology in Education, vol. 51, Apr. 2019, pp. 239-258, doi:10.1080/15391523.2019.1586601

[17] Q. Ren, "The effects of motivational regulation on student engagement in blended college English classroom teaching environment", Technology Enhanced Foreign Language Education, vol. 43, Feb. 2021, pp. 44-55+60+7.

[18] Q. Huang and Y. Han, "A SEM-based study of students' motivational regulation strategies in their college English learning", Foreign Languages and Literature, vol. 30, Apr. 2014, pp. 173-178.

[19] T. Cleary and P. Chen "Self-regulation, motivation, and math achievement in middle school: Variations across grade level and math context", Journal of School Psychology, vol. 47, Oct. 2009, pp. 291–314, doi:10.1016/j.jsp.2009.04.002

[20] M. Alotumi, "EFL college junior and senior students' self-regulated motivation for improving English speaking: A survey study", Heliyon, vol. 7, Apr. 2021, doi:10.1016/j.heliyon.2021.e06664

[21] H. Lee, and J. Lee, "Who gets the best grades at top universities? An exploratory analysis of institution-wide interviews with the highest achievers at a top Korean University", Asia Pacific Education Review, vol. 13, Sep. 2012, pp. 665-676, doi:10.1007/S12564-012-9227-8

[22] C. Grunschel, M. Schwinger, R. Steinmayr, and S. Fries, "Effects of using motivational regulation strategies on students' academic procrastination, academic performance, and well-being", Learning and Individual Differences, vol. 49, Jul. 2016, pp. 162-170, doi:10.1016/J.LINDIF.2016.06.008

[23] O. Kryshko, J. Fleischer, J. Waldeyer, J. Wirth, and D. Leutner, "Do motivational regulation strategies contribute to university students academic success?", Learning and Individual Differences, vol. 82, Aug. 2020, doi:10.1016/j.lindif.2020.101912

[24] M. Schwinger and N. Otterpohl, "Which one works best? Considering the relative importance of motivational regulation strategies", Learning and Individual Differences, vol. 53, Jan. 2017, pp. 122-132, doi:10.1016/J.LINDIF.2016.12.003

[25] L. Teng and L. Zhang, "Effects of motivational regulation strategies on writing performance: a mediation model of self-regulated learning of writing in English as a second/foreign language", Metacognition Learning, vol. 13, Aug. 2018, pp. 213–240, doi:10.1007/S11409-017-9171-4

[26] L. Hui and X. Ding, "A study on motivational regulation of college students in English writing", Journal of Beijing International Studies University, vol. 33, Aug. 2011, pp. 76-80+62.

[27] L. Teng, R. Yuan, and P. Sun, "A mixed-methods approach to investigating motivational regulation strategies and writing proficiency in English as a foreign language contexts", System, vol. 88, Feb. 2020, doi:10.1016/j.system.2019.102182

[28] R. Oxford and M. Nyikos, "Variable affecting choices of language learning strategies by university students", The Modern Language Journal, vol. 73, Sep. 1989, pp. 291-300, doi:10.1111/J.1540-4781.1989.TB06367.X