

Self-regulation in Online English Learning: Case Studies of Three Chinese Undergraduate

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Abstract

During the pandemic, online teaching has become the main way of education. Students' self-regulation ability is one of the key factors that affect the teaching. Based on Zimmerman's theory of self-regulated learning (2000), this study explores the process of self-regulated learning of English majors in the online teaching environment. The qualitative method is used to track the online learning process of three English majors through personal interviews, students' learning plans and reflective diaries. The research shows that students have different abilities in the three stages of self-regulation, and the individual differences of self-regulation ability are influenced by both learners' internal factors and social factors. The findings provide pedagogical implications for cultivating students' self-regulation ability in online teaching environment.

Keywords

Self-regulation; Online English learning; Qualitative method.

1. Introduction

In the spring of 2020, affected by the epidemic of new coronavirus, foreign language teaching in colleges and universities changed from physical classroom teaching to online teaching in China. Online teaching is convenient, generalized and interactive, which can promote the development of foreign language learning in the direction of individualization and autonomy (Chen & Ma, 2019). Before the outbreak of COVID-19, many university teachers also used flipped classroom, platform resources, electronic courses and other teaching forms in their previous teaching, but most of them only as a supplement and extension of offline courses. Under the background of the epidemic, online teaching of college English is becoming increasingly important. While the teaching objectives, teaching contents and teaching methods of online courses lack systematisms, scientificity and integrity. The outbreak has left many teachers unable to cope. Thus, knowing students' self-regulated learning ability is one of the key factors to achieve its effect. (Shang, 2016).

The existing relevant research is mainly based on questionnaires, and finds that students' self-regulation ability is regulated by multiple factors in the online foreign language teaching environment, such as learning resources, learning environment and learner's internal factors but there are few qualitative studies. There are few qualitative researches (Liu et al 2011) explore the self-regulation model of excellent English learners, but does not focus on students with different self-regulation abilities. Based on Zimmerman's (2000) self-regulated learning framework, this study adopts a qualitative approach to explore English learners' use of self-regulated ability in online English classes, with a view to providing some suggestions for foreign language teachers' online teaching practice.

This case study explores the self-regulation of three learners at a public university in China in order to understand how self-regulatory mechanisms shaped their language learning behaviour in Online English Learning. This study also aimed to examine contextual factors that might act as facilitators or constraints on the participants' self-regulation in online English

learning. The purpose of this paper is to explore how students with different self-regulation abilities regulate their English learning in the online English teaching environment.

Thus, the case study was intended to investigate the following research questions:

1. How do the English language learners in a Chinese university use SRL strategies?
2. What motivational influences on SRL strategy use are reported by the participants?
3. What environmental influences on the SRL strategy use are evident among the participants?

2. Literature Review

Self-regulated learning (SRL) is a process in which learners strive to motivate and control their cognitive, affective, and behavioral abilities in order to achieve their personal goals (Zimmerman, 2000:14). Zimmerman (2000), from the perspective of social cognitive theory, divides self-regulated learning into three stages: forethought, behavior and self-reflection. Learners' self-regulation ability is related to whether they can set reasonable goals, choose appropriate strategies and stimulate their own motivation before learning. Most SRL theorists agree that these thoughts, feelings and actions have interconnected cognitive, affective, motivational, and behavioral dimensions (Montalvo & Torres, 2004).

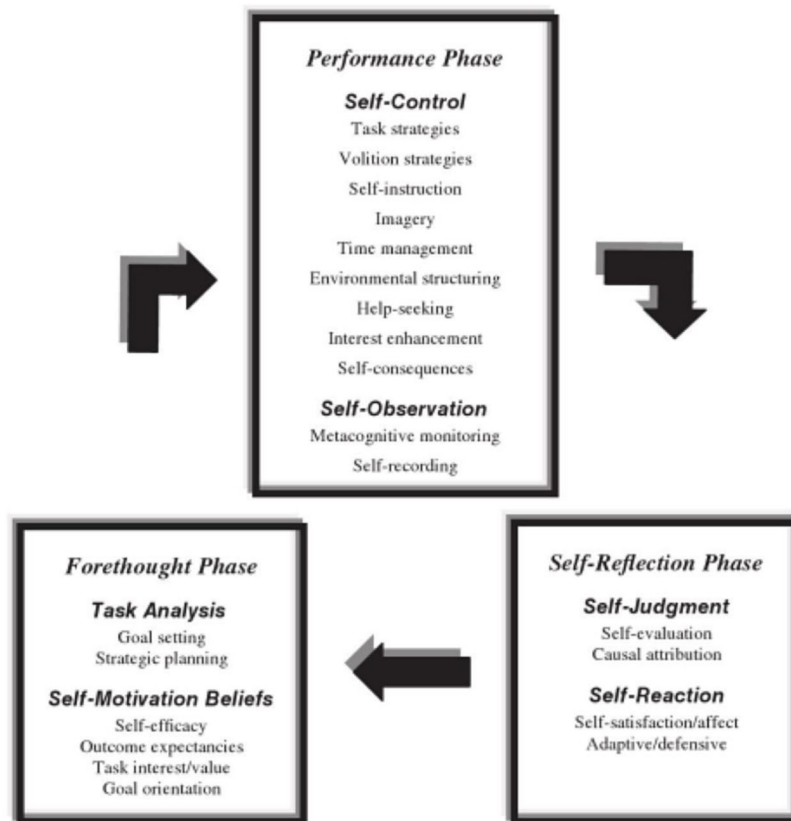


Figure 1. Phases and subprocesses of self-regulation. From “Motivating self-regulated problem solvers” by B.J. Zimmerman & M. Campillo (2003), in *The nature of problem solving* (p. 239). J.E. Davidson & R.J. Sternberg (Eds.). New York: Cambridge University Press. Copyright (2003) by Cambridge University Press

Self-regulated learning (SRL) is characterized by dynamic development, which is influenced by both individual factors and external environmental factors (Pintrich, 2000). Firstly, learners' motivation, beliefs and strategies are important factors affecting self-regulation ability in online learning environment (Li & Liu, 2013; Zheng, 2017). When students have the intrinsic motivation to use English as the goal, they will be more active in setting goals, arranging time,

adjusting strategies, and timely evaluating their own learning situation, and then arranging follow-up learning plans. When students think that English learning can help them understand things from different perspectives (Zheng et al.,2016:73) And online learning is the responsibility of students themselves (Li &Liu,2013:42), they can show stronger self-regulation ability in online teaching environment. If learners have a positive experience of online foreign language learning, their autonomy will become more and more obvious, and they will no longer rely too much on the help of others (Zheng, 2017). Excellent students are often good at self-evaluation of their own learning outcomes, adjusting their goals on the basis of evaluation, and choosing and implementing appropriate learning strategies (Liu et al 2011). However, English learning is a difficult and long-term process, during which difficulties and external interference can easily hit students' learning motivation (Li Mang, 2012).

Learners' self-regulation ability is also affected by external factors such as teachers' teaching, learning resources, learning environment and so on (Chen, 2007; Deng et al, 2012; Shyr & Chen, 2017). Although the scale of online courses is expanding rapidly, the existing online courses have some problems, such as insufficient learning resources (Deng et al 2012) and low quality of content (Zou, 2013). Many courses simply record the contents of textbooks into videos (Qin, 2019), which does not reflect the teaching idea of student-centered, leading and subject combination (Chen & Ma, 2019:16). In addition, online learning is inevitably restricted by external environment such as network speed and learning environment (Deng et al 2012).

To sum up, online teaching highly requires teachers' teaching and learners' self-regulation ability. In order to deeply understand the mechanism of online teaching promoting learning, it is urgent for the academia to conduct research to explore how learners with different characteristics use self-regulation ability to participate in online English classroom learning, so as to provide teaching enlightenment for cultivating students' self-regulation ability and improving learning effect in online teaching environment.

3. Methodology

3.1. Research Design

This study sought to complement the existing literature on self-regulation in online English language learning. The main research stage is qualitative research, which collects qualitative data through one-to-one interviews with three students, students' reflective diaries and chat records of teachers and students. With this approach, the emphasis in collection and analysis of data was on understanding and interpreting the participants' own perspectives on self-regulating their online English language learning. This approach was seen to be the most appropriate for gaining an in-depth understanding of the learners' self-regulation in this context. Qualitative research analysis software Nvivo was used to manage and analyze the data. This involved transcribing interviews, typing up field notes, scanning documents from learners, and sorting the data based on sources of information. Next, I read through the data to get an overall sense of the information from participants and to think of its general meaning.

In this study, self-regulation is seen as a process which includes "cognitive, ... motivational, emotional and social factors" (Puustinen & Pulkkinen, 2001, p. 280) that the participants apply to achieve their language learning goals through online English course. Self-regulation is perceived as a process through which the individual learners apply their agency (Bandura, 2001). In this study, the participants' SRL is seen as a "developing and dynamic process" (Boekaerts, 2005, p. 208), and accordingly this study was carried out for one-month online learning period.

Hence, qualitative inquiry suits the purpose of this study to explore and understand the self-regulated learning of Chinese online English language learners as they embark on a language course at a public university and to examine the personal, motivational, and environmental

factors that may have influenced their use of self-regulatory strategies. The stages of the study are shown in table 1.

Table 1. Research phases

Research Instrument	Collection Time	Duration	Analysis Method
Initial interview	week 1	15 mins per.	Content analysis
follow-up interview	week2	30mins per.	Content analysis
final interview	Week 4	30 mins per.	Content analysis
reflective diary	each week	5 mins	comparative analysis

3.2. Participants

The study was carried out in the fall of 2020 in a compulsory online course of college Integrated English IV for sophomores of business majors in a provincial university in central China. The course is taught by the first author of this paper, taking the form of live broadcasting, using live broadcasting platform (zoom, Tecom online meeting) to connect to achieve teacher-student interaction. Each week has 2 lessons for 3 hours in total. Students were advised to write down their semester goal and study plan for each week at the beginning of the term. However, due to the researching time management, the research was started from the last month of the semester.

The sample for this study included three students. Participants ranged in age from 19 to 20, which were two females and one male. Two of them were from urban areas and one of them was from rural areas. All of them were in their second year of study. The participants all passed the CET-4 (College English test in China) with the score 546,594, 489 respectively representing their level of English proficiency. These scores correspond to IELTS scores 5.5-6.5. Each student was asked to make a study plan or a learning goal at the beginning of the course.

Due to the period of data collection took one month, selection of participants was depended on their willingness to participate. Making sure of keeping in contact with me and communicate effectively with me. Dornyei (2007, p. 126) highlights that in a qualitative inquiry, the main goal of sampling is to find individuals who can provide "rich and varied insights into the phenomenon under investigation" to maximize what can be learnt.

Table 2. Participants

	Sex	Age	Scores of CET-4	Places they had the online class
S1	F	19	546	Guiyang. (Rural)
S2	F	19	594	Chaozhou (Urban)
S3	M	20	489	Guangzhou (Urban)

3.3. Data Collection

Semi structured interviews with the learners and language instructors functioned as the main means of exploring the learners' self-regulation in online English learning. Semi-structured interviews contribute to comparability across cases whilst allowing for sensitivity to the uniqueness of each participant's experience (Huberman & Miles, 2002). The semi-structured interview was conducted by Wechat/QQ voice call, aiming to understand the students' perception and application of the three dimensions of planning, behavior and reflection in Zimmerman's (2000) self-regulation theoretical framework. With the consent of the three students, the researcher recorded and transcribed the interview. The researcher also collected students' reflective diaries and study plan. Teacher-student interaction between students and the first author of this paper through Zoom or tecom meeting in and after the class. Multi-

channel data can form triangulation (Merriam, 2009), in order to understand the real situation of students' self-regulated learning in online teaching environment.

3.3.1. Semi-structure Interview

The initial interview was to check their background information like their age, faculty, past language learning experiences, and opinion of language learning experiences at the university for the previous and current semester.

The following-up interview were designed based on the three dimensions of self-regulation learning which means forethought, performance and self-reflection of their English learning online. The final interview was conducted at the end of the semester and also after the final online class observation to elicit the participants' SRL strategies in a more general context. It aimed to assure and explain on learners previously reported and observed SRL strategies. Students were encouraged to reflect on the SRL strategies they had used, which includes their feelings and motivation, their learning environment that support in online English learning. Comments about their performance throughout the semester were also given on the interview. The final interview took about 30-45 minutes each.

3.3.2. Reflective Diaries

The findings from the interviews were triangulated by reflective diaries of participants in and outside the classroom to complement the interviews in providing rich and contextualized descriptions of students' SRL. Keeping a personal record of the process, key decisions and feelings offers the researcher the opportunity to learn from the research process (Thorpe 2010) and better remember how things came to pass. When writing up, this log can become as a vital a source of data as a participant interview. Participant were asked to write weekly reflective diaries. This method provided the context, like their perspective towards the online class activities, online learning tasks, discussion with peers that might affected the participants self-regulation and their choice of SRL strategies. The study plan was suggested during the research and the chatting record was collected via the online classroom. Table 3 summarizes case data collected during the main study phase.

Table 3. Data collection

Participant's	Data collection			
	Interviews (total time)	reflective diary	study plan	chatting record
S1	1h11mins	4	8	12
S2	1h45mins	4	28	24
S3	1h 35mins	3	1	3

In the primary coding stage, researchers used content analysis (Merriam, 2009) and constant comparative analysis (Strauss & Corbin, 1990) to code the interview text. After that, the primary codes with similar characteristics are classified, and the secondary codes with generality are used to refine the theme. Finally, through cross-case comparison, this paper analyzes the self-regulation ability of three students when they carried out online course learning. The researcher conducted several rounds of purposive reading on the qualitative data, combined with the self-regulation ability of three case students in the initial interview, focusing on the characteristics of self-regulation learning in the planning, behavior and reflection stages of the case study.

4. Results

4.1. Forethought Phase

4.1.1. Goal Setting

In this study, goal-setting belongs to the forethought stage within the framework of Zimmerman (2000), which refers to the students' behavior of setting goals and making plans for online English course learning. S1 believes that the change of learning environment from offline to online has not changed the habit of making learning goals and learning plans. Online learning gives her more freedom to plan and arrange the learning content. S2 thinks that the home environment is easy to relax themselves, and they should make learning plans to spur themselves to improve their learning efficiency. S3 admits that studying at home every day and taking online courses step by step is boring. Also, more chores at home than in school reducing the motivation to learn, and there are no learning goals (S3, interview).

Research shows that the setting of learning goals is largely influenced by students' motivation and beliefs, such as students' self-efficacy, intrinsic interest, expectation of learning results, etc. Students with high self-regulation ability have strong intrinsic motivation, specific goal setting, focus on improving the ability to use English subject knowledge and skills, and high self-efficacy. S1 said in the interview that English is a subject that will make progress and gain as long as you insist on learning. Although S1 only sent two brief reflections to teachers in the first week, S1 is learning goal-oriented, has a clear, specific and executable learning plan, and actively reflects on its own weaknesses to adjust the learning plan at any time. Therefore, S1 firmly believes that even without teacher monitoring, she has the ability to control the learning rhythm and arrange the learning plan:

"At the beginning of each semester, I have a general learning goal. For example, this semester my big goal is to improve writing ability, I will subdivide the goal to monthly, weekly, such as vocabulary, sentence, paragraph, chapter structure. I should have started paragraph writing training this week according to the plan, but I found that the sentence pattern was still too single, the words were not very accurate, so I adjusted the plan and strengthened the training of sentence expression." (S1 interview)

On the contrary, students with low self-regulation ability (S3) have difficulty in sustaining their intrinsic learning motivation and interest, low self-efficacy, and lack of systematic and specific learning objectives and plans.

"The teacher said in class that day that we should make plans and make improvements step by step. I also want to change. I can always do a few days on a whim but cannot insist, I do not like too laborious things but some easy thing. What is more, studying at home (online learning) has less learning atmosphere. A few days ago, I watched the video of Bilibili (a Chinese video sharing website) to learn to do meditation for I wanted to improve my concentration. And I found that it was effective to improve my learning efficiency. But you know, after a few days, I still can't hold on. It's hard." (S3, Interview)

When asked why he failed to accept the teacher's suggestion to formulate and implement the semester plan, S3 explained: "Even if you plan to follow the teacher's requirements every day, it is estimated that you can't stick to it. If you can't finish it, the plan will be fake if it is shown to the teacher." The researcher asked about S3's long-term learning goals and found that S3 was completely confused from the freshman year, and began to form vague goals, such as "getting higher salary with high English proficiency." He also planned to learn more about British and American cultures during the summer vacation. However, due to the lack of intrinsic motivation, there are no specific implementation steps for this goal, which is still in the stage of thinking.

S2 is the only student in the case who insists on making learning plans and frequently interacts with teachers. Within four weeks, S2 sent 24 interactive messages with teachers. Especially

when S2 perceives the role of making plans in promoting learning, she thinks it is easier to stick to making and implementing plans.

"I feel that planning will give me a motivation to learn. Sometimes there is inertia, but when you see that the plan has not been completed, you will urge yourself." (S2, Log, Week 2)

"I make plans for I can get the benefit from doing it like I have a good management of my time. Over the past few weeks, I have found that my reading ability has improved, and I can analyze the long and difficult sentences in the Economist by myself. The last time I asked you that sentence, I have been insisting on the structure analysis of complex sentences, I feel progress, very happy!" (S2, interview)

From initially following the teacher's advice to actively making plans, S2 felt a sense of achievement in the process of setting goals and making plans, and also actively evaluates whether he has completed his learning tasks as planned and whether the learning plan can help achieve the learning goals.

4.1.2. Environment Construction

Constructing a good learning environment can help students avoid interference factors and concentrate on learning. Although the three case students reported in the questionnaire that they chose the right place for online English learning to avoid interference, the actual operation was influenced by objective factors such as family environment, as well as learners' beliefs and motivations. Interview data show that the higher self-control ability of S1 has clear learning objectives, higher degree of learning engagement, and can quickly adjust the state after being disturbed by external factors such as family members, and continue to invest in their own learning.

"Our home is in the countryside, and there are often many people coming to visit. So sometimes my study is difficult to concentrate, and I will always be interrupted." (S1, Interview)

In order to improve the learning efficiency, S2 also made some actual efforts.

"There are six people in my family, so sometimes when I want to get into the learning state, it may be time to eat, and I have to stop, otherwise everyone is calling me to eat." (S2, interview)

S3, which has a slightly lower self-control ability, initially moved from his home to his grandfather's home for a smooth network and a quiet learning environment. But because of the lack of learning motivation, there is no systematic and specific learning plan. Thus, once learning is interrupted by external affairs, it is difficult to continue.

4.2. Performance Phase

4.2.1. Task Strategy

Zimmerman (2000) points out that students with high self-control ability will use a variety of learning strategies, and have the ability to continuously evaluate the fit between the selected strategies and learning objectives, so as to adjust the strategies in time. When S1 with high self-control ability carries out online English learning, it makes flexible adjustments to learning strategies.

"In view of the weak points, I will adjust the learning methods at any time. For example, when I write English compositions, I find that the sentence patterns are relatively single and the vocabulary is not authentic enough. I will strengthen my reading during this period of time, as well as some apps to summarize some good sentence structures and phrases. And also paying attention to their context, doing constantly review, and consciously using them in future writing". (S1 interview)

Students adjust their learning strategies according to the changes of learning environment in the process of online learning, which shows the improvement of their self-regulated learning ability to a certain extent. Student S2 said that compared with the physical classroom, he would take more detailed notes when studying online courses, because online courses require more

self-discipline and students cannot communicate face to face with teachers and classmates, so she had to read more, write more and analyze more (S2, interview).

When S2 realized that it was not easy for him to understand the long and difficult sentences in the text in the teacher's live broadcast, he immediately adjusted the preview strategy:

"I will mark out the key and difficult parts before the live broadcast class, and analyze and understand them first. In the teacher's live lecture, we should focus on listening to the lecture to improve the efficiency of listening." (S2, interview)

Students will also adjust their learning strategies according to the teaching in the online English classroom. Both S1 and S2 indicated in the interview that the design of teaching content, the organization of classroom activities and the composition of total evaluation results were reasonable, which enabled students to set goals and devote themselves to learning according to the learning content. At the same time, they mentioned that some English online courses are not rational enough, the connection between knowledge points is weak, and the focus is not prominent enough:

"I hate such online courses. I will arrange time to reorganize the knowledge points after class, but it is a waste of time." (S1, Interview)

The students with low self-control ability have single learning strategy, lack of deep thinking and weak planning. S3 said frankly that he only read the text following the procedures in the preview, read the teaching reference analysis and text translation:

"There is a feeling of water go through the dry ground, I still cannot understand the text, paraphrase, translate, as well as grammar. Taking notes is also more casual, only taking notes seriously when I have a right attitude." (S3, Interview)

4.2.2. Time Management

In terms of time management, S1 with high self-control ability has a strong internal drive: Every task can be completed according to the plan, and there are few cases that cannot be completed; Even if there is a sudden interruption, they will find time to finish it. (S1, Interview) On the contrary, S3 with lower self-control ability is more vulnerable to external interference because of lack of learning objectives, no intrinsic interest drive, no learning input:

"The time allocated to learning is only about one fourth, which is easy to be interrupted. You know, if you have time to relax, why do you want to study? Thus, my online learning is usually in low efficiency. Distraction and procrastination can also be used to describe my online English learning. I often stay up late to complete the deadline." (S3, interview)

The setbacks and difficulties encountered in learning have curbed S3's motivation to learn, resulting in his resistant attitude towards online learning:

"100% cannot continue!! If I continue to study online, I really don't know how to arrange my study!" (S3, interview).

However, when the online learning experience tends to be positive, students' self-regulation ability in goal setting, planning and learning strategies will also be improved. In the process of S2 online course learning, through the formulation and careful implementation of the plan, her ability of time management has been improved, and the sense of achievement and pleasure brought by learning has been felt. In her reflective diary, words such as "time is well grasped" and "high efficiency" frequently appear. When she finished her study plan one weekend, she wrote:

"In the past, I will also study at weekend but with the low efficiency leads to the bad mentality because I think that I should be relaxed at weekend. So that I cannot control myself to watch TV series, play mobile phones. But today is really different, I has been concentrating on learning, completing the plan, and has not touched the mobile phone, I think it is a big progress! (S2, Journal of Reflection)"

4.2.3. Seeking Help

Actively seeking help is considered to be a manifestation of high self-regulation ability. However, this study found that S1 with higher self-control ability is more independent in learning, and she is more inclined to solve problems by herself in online courses than to seek help from teachers and peers:

“By looking for information, the impression is more profound, and in the process, I can also learn new knowledge. Especially in online courses, face-to-face communication is not possible, if you ask others questions but cannot be answered and solved in time, it is better to solve them by yourself.” (S1, Interview)

S2 asked the teacher four times in the online course during the first week and generated 24 chat records, but she seldom asked the teacher for help after that. S2 explained that first, because the teacher did not reply in time, worried that the teacher was busy; Second, with the improvement of their ability, they gradually adapt to the online learning mode and intentionally exercise their ability to solve problems independently.

However, S3 is more likely to give up rather than ask for help when it encounters learning difficulties: “There is no communication with classmates in English learning. Too many things do not understand, let go.” (S3, interview).

4.3. Self-reflection Phase

4.3.1. Self-evaluation

In the stage of self-reflection, learners self-evaluate their learning behavior, analyze the reasons and adjust their goals and strategies in time (Zimmerman, 2000). Qualitative data show that S1 and S2 with higher self-regulation ability actively reflect on their learning behavior, evaluate the degree of plan completion, adjust learning strategies in time, and set new goals and plans.

“Teachers cannot give timely feedback face to face in online course, students need more self-discipline to find problems in time making timely assessment to adjust the learning plan in time. The homework and classroom tests assigned by the teacher can also help me reflect and test whether the knowledge is firmly grasped.” (S1, Interview)

S2 is not satisfied with his loose learning attitude when reflecting on the learning state and learning effect of the initial stage of online courses, so she is determined to correct her learning behavior. S2 Makes learning plans (28) and receives feedback from teachers, participates in discussions and collective reflection. During her online study, she wrote four reflective diaries during this month, not only summarizing the completion of each learning task in the week, but also summarizing the overall learning situation, sorting out the remaining problems, and then planning the next stage of learning. for example:

“Today is a full day. I can write the text with the words learned from the intensive reading of the text. The biggest lesson I’ve learned is that we must review for several times! Although there is a period of time in the middle of the state is not good, but after adjustment and continued, I feel not bad! (S2, Journal of Reflection, Week 2)”

Because S2 timely assessed the rationality of goals and plans, tracked the completion of plans, and adjusted her learning behavior, she entered a virtuous circle, and the satisfaction she gained from it further encouraged her to increase her learning investment.

Compared with S1 and S2, S3's reflection stays on the defects of poor self-control and lack of teacher supervision in online teaching, and does not consider how to exercise self-regulation ability, thus drawing the conclusion that online learning can no longer continue:

“Seldom reflect. I know there are some problems, but I usually solve them by myself. if I can't solve it then will forget it. I think this online learning cannot continue for I learn very little (knowledge) with bad self-control ability. Even if there is teacher supervision, it is estimated that 90% just for finishing but not learning. My poor execution.” (S3, Interview)

5. Discussion

5.1. Performance of the Usage of SRL Strategies

This study analyzes the performance of students of business majors with different self-regulatory abilities in the stages of planning, behavior and reflection in online course learning, and explores the application of self-regulatory learning ability of case students in online learning environment. The data show that in the online teaching environment, students show different regulation modes in different stages of self-regulation (planning, behavior, reflection). In the process of regulation and control, students' goal-setting will affect their behaviors in the stages of learning environment construction, strategy use, time management and help seeking, and whether students can effectively carry out self-evaluation will in turn affect the formulation of learning goals in the next stage. This finding suggests that learner self-regulation is a recurring, interactive feedback system in the online context (Zimmerman, 2000).

5.2. Motivational Influences on SRL Strategy

S1 of this study and the excellent learners studied by Liu et al. (2011) have formed a virtuous circle in all stages of self-regulation. These students have clear learning objectives, can adjust their learning rhythm and strategies in time according to the results of self-evaluation, and know how to build a good learning environment and make full use of online learning resources. In terms of S2, with moderate self-regulation ability, the cycle of each stage of self-regulation presents the characteristics of spiral rise. Driven by strong intrinsic motivation and learning beliefs, S2 responded positively to the teacher's guidance. Regular reflection enables her to find problems in time and adjust her learning attitude and behavior. In addition, S2 online learning experience is becoming more and more positive, her self-regulation ability has also been developed, which confirms that learning experience regulates learners' self-regulation ability. The better learning experience, the more active and independent learning. (Zheng, 2017).

Different from the virtuous circle of S1 and the spiral rise of S2, the self-regulated learning ability of S3 remained at a low level. English learning is a continuous, long-term process, because of the lack of learning motivation, S3 not only cannot always experience success in learning, but also often experience failure, suffer setbacks lowering his learning enthusiasm, thus reducing the learning motivation (Li, 2012). S3 had encountered various learning difficulties and external interference in the learning environment of online course, which requires high autonomy.

5.3. Environmental Influences on the SRL Strategy

The data of this study also shows that the realization of self-regulation ability in online teaching environment is not only affected by the internal factors of learners, but also by many external factors such as learning environment, teacher teaching and so on. In this study, teachers emphasize the importance of self-regulation ability in online learning, encourage students to make learning plans and write reflective diaries, and give instructive feedback according to students' plans and reflections. These teaching factors promote the development of S2 self-regulation ability. However, the change of learning environment from offline to online has a negative impact on S3's self-regulation behavior. S2 and S3 reveal the process characteristics of self-regulation (Zimmerman, 2000), indicating that self-regulation ability is a multi-dimensional dynamic research construct of the interaction between individual and environment, and echoing the research findings that external factors such as resources, environment and teachers affect students' self-regulation ability (Chen, 2007; Deng et al 2012). The above findings have important implications for foreign language teaching. Considering that learning environment has a great impact on self-regulation ability, online teachers should not take it for granted that students can quickly adapt to the change of teaching environment and

teaching mode of the online English learning, but should train and coach students to build self-regulation ability (Shyr & Chen, 2017).

Teacher guidance should adhere to student-centered and achieve targeted counseling (Chen&Ma, 2019). For students with strong self-regulated learning ability, teachers should guide them to expand their foreign language learning from online classroom to outside classroom, and make full use of learning resources in the information age. For students with low self-regulated learning ability, it is not enough to rely solely on teachers to emphasize the importance of self-control ability orally, but to urge students to make good learning plans and reflect in time, and to provide students with clear goal expression, step guidance and timely feedback before and after specific teaching activities, as well as to encourage students to reflect and summarize systematically after tasks.

6. Conclusion

Based on Zimmerman's (2000) theoretical framework of learner self-regulation, this study adopts a qualitative approach to explore how sophomores of business majors with different self-regulatory abilities regulate their learning in online English courses. This study found that case students showed different patterns of using self-regulation ability in the process of online course learning. The results further confirm that self-regulation is a feedback system of continuous cycle and interaction, which has both personalized and social characteristics, and is a multi-dimensional dynamic construct of interaction between individuals and the environment. Although this study provides ideas for foreign language teachers to carry out online courses or blended teaching research and teaching practice, the sample size of this study is small and the research time is short. Future research can expand the sample of case studies, carry out more long-term longitudinal studies, track foreign language learners with different self-regulation abilities, and further explore the use, development and influencing factors of students' self-regulation abilities.

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