# Students Using Teachers' Quality Feedback to Develop Self-Regulated Learning

and

# Second Language Writing Skills in a Flipped Classroom Context

By

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# **Statement of Originality**

I, WONG, Nga Lun Alan, hereby declare that I am the sole author of the thesis, and the material presented in this thesis is my original work except those indicated in the acknowledgement. I further declare that I have followed the University's policies and regulations on Academic Honesty, Copyright and Plagiarism in writing the thesis, and no material in this thesis has been submitted for a degree in this or other universities.



#### Abstract

Self-regulation behaviours are a significant predictor of students' academic achievement. However, few students are proficient in regulating their learning. Feedback is a promising way to support students in becoming self-regulated learners, but the large class sizes and tight teaching schedules make this difficult to implement in Hong Kong schools.

The flipped classroom approach and seven principles of high-quality feedback practices were adapted to formulate the current study's theoretical framework—the selfregulated flipped classroom (SRFC) approach. The flipped classroom could free up classroom time by moving teacher-centred instruction out of the classroom using online learning resources. The primary goal was to provide more opportunities for active learning activities, teachers to provide quality feedback and students to respond to the feedback.

To investigate whether the SRFC approach can enhance students' self-regulated learning (SRL) skills, a pretest, posttest nonequivalent quasi-experiment study design using a mixed-method approach was conducted. The experiment collects evidence for investigating whether the approach can (1) enhance students' SRL, (2) foster better feedback practice, (3) enhance students' second language writing skills and (4) foster the use of SRL strategies. Quantitative measures included two self-report questionnaires MSLQ-RCV and AEQ, students' ELS written test and SRLIS structured interview. ANCOVA was used to analyse the data. Students' responses to the SRLIS also transcribed, categorised into 15 SRLIS strategies and analysed qualitatively.

The results indicate that students' self-efficacy, use of feedback and writing skills were significantly higher in the SRFC classroom experimental group than in the control group. Moreover, students' test anxiety was statistically significantly lower in the experimental group. These findings suggest that the SRFC approach can enhance students'



self-efficacy, reduce their test anxiety, foster better use of feedback, and improve students' academic performance.

This study's findings provide additional insight and empirical evidence that students' opportunities to respond to feedback are as significant as the quality feedback itself. Since the flipped classroom not only free up time for teachers to provide feedback; it also frees up time for students to respond to the feedback.

*Keywords*: academic achievement, feedback, flipped classroom, self-regulated learning, writing skills



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# **List of Abbreviations**

AEQ	Assessment Experience Questionnaire
ANCOVA	Analysis of Covariance
COVID	Coronavirus Disease 2019
ESL	English as a Second Language
SRFC	Self-regulated Flipped Classroom
MSLQ	Motivated Strategies for Learning Questionnaire
MSLQ-RCV	The Revised Chinese Version of the Motivated Strategies for Learning Questionnaire
SPSS	Statistical Product and Service Solutions
SRL	Self-regulated Learning
SRLIS	Self-regulated Learning Interview Schedule



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#### **Chapter 1:** Introduction

# **1.1 Background**

Hong Kong's education reform's primary goal was to promote students' ability to 'learning to learn' (Education Commission, 2000); this goal aims to equip students to become lifelong learners with the knowledge, competencies, and skills to continue their 'selfeducation' after their formal education (Candy, 1991). Zimmerman (1989) stated that 'learning is not something that happens to students; it is something that happens by students' (p. 21). This statement implies that to become lifelong learners, students should take ownership of their learning, and teachers should be the facilitators to facilitate learning in their students.

Lifelong learners should be able to set learning goals and formulate learning strategies. Furthermore, they could carry out the learning plan, keep tracking their learning progress and managing their motivation, time and learning environment; they should also reflect on their performance and evaluate their outcomes (Zimmerman, 2002). This also describes the learning process of a self-regulated learner. Self-regulation is a significant predictor of students' academic achievement (Nota, Soresi, & Zimmerman, 2004). Besides academic achievement, self-regulation behaviours observed during childhood can also predict interpersonal behaviours, mental health and healthy living in later life (Robson, Allen, & Howard, 2020).

It is crucial to provide feedback to students to help them become self-regulated learners (Butler & Winne, 1995; Nicol & MacFarlane-Dick, 2006). For example, students could enhance their learning effectiveness when they receive external feedback at the right time (Bangert-Drowns, Kulik, Kulik, & Morgan, 1991; Kulhavy & Stock, 1989; Meyer, 1986). According to Hattie and Timperley (2007), feedback is one of the most important



factors in students' learning and academic achievement; the authors suggested that feedback at the self-regulation level is generally the most effective in raising attainment. The seven principles of high-quality feedback practice have been suggested by Nicol and MacFarlane-Dick (2006) as a guideline for teachers to provide feedback to students to improve students' self-regulation.

Time is a valuable resource for creating the conditions for high-quality feedback to help students improve their self-regulation (Gibbs & Simpson, 2005). However, teachers providing high-quality feedback and students be able to respond to the feedback may be a luxury in terms of time because of the large class sizes and tight teaching schedules, especially in the context of Hong Kong (Harfitt, 2012; Jenson, Hunter, Sonnermann, & Burns, 2012).

To free up classroom time for more active learning activities, more time for teachers to provide high-quality feedback and provide more opportunities for students to respond to the feedback. This study implemented the flipped classroom – an education technique to utilise the internet and computer technology to move teacher-centred instruction outside the classroom (e.g. by prerecorded teaching videos), to free up time for student-centred learning in the classroom (Abeysekera & Dawson, 2015; Bishop & Verleger, 2013).

Hence, the main goal of the current study is to evaluate if the flipped classroom approach could enhance students' self-regulation, foster better feedback practice and improve their academic performance.

# 1.1.1 Overview of Self-Regulated Learning

There are various definitions of self-regulated learning (SRL). Bandura (1986) viewed SRL from a social cognitive perspective, where a student's personal (such as cognitive, emotional and physical), behavioural and environmental are the three main factors



that could affect one's cognitive development and metacognitive strategies for academic learning. Bandura believed that students could enhance their learning by actively reacting to their performance outcomes, changing their learning environment and regulating their personal emotional or physical conditions.

Since Zimmerman and Schunk (1989) published the *Self-Regulated Learning and Academic Achievement: Theory, Research, and Practice*, from which many SRL studies have been derived. They viewed SRL as self-generated thoughts, feelings and behaviour that systematically help the student accomplish goals. Later, Zimmerman (2002) claimed that self-regulation is distinct from mental abilities and academic performance skills. Selfregulation is a process of transforming mental abilities into academic performance skills. It is a proactive activity initiated by the student rather than a passive reaction to the teacher's teaching.

However, studies have also shown that SRL does not automatically develop with age. Systemic interventions are required to support students to build their SRL and strategies (Orhan, 2007; Schunk & Zimmerman, 2003; Lapan, Kardash, & Turner, 2002). Pintrich (1995) and Coppola (1995) stated that self-regulation is teachable because students can learn to become better SRL learners through learning experience and self-reflection.

Pintrich (2000) summarised the schools of thought of self-regulation, finding that all these schools all share the following underlying assumptions: First, students are active and constrictive in their learning progress; second, the students can control their learning; third, students set the goal, standard or criteria to help them monitor their gap between the current progress and the desired goal; and fourth, self-regulation activities mediate between student's attributes and the context. Pintrich and Zusho's (2002) concept of SRL shares all four major SRL assumptions:



Self-regulated learning is an active constructive process whereby students set goals for their learning and monitor, regulate, and control their cognition, motivation, and behaviour, guided and constrained by their goals and the contextual features of the environment. (p. 64)

Numerous studies have shown that SRL is a critical factor for academic achievement and effective learning (Nota et al., 2004; Pintrich, 2003). Zimmerman (1990) believed that the use of SRL strategies was tightly associated with success in learning. Helping students become self-regulated learners is even more critical because of the robust connection between SRL and academic success.

#### 1.1.2 Overview of Feedback to Support Self-Regulated Learning Development

However, few students possess the skills needed to regulate their learning (Butler & Winne, 1995; Hadwin & Winne, 2001). Therefore, Nicol and MacFarlane-Dick (2006) proposed that offering high-quality feedback to students about their learning outcomes is one of the best ways to improve students' self-regulation. Providing feedback can help students understand what is right and wrong and their strengths and weaknesses, monitor their learning process and provide valuable learning information. Students could use this advice to improve their subsequent learning. Here, the seven principles of high-quality feedback practices are a framework for teachers to help students become self-regulated learners (Nicol & MacFarlane-Dick, 2006):

- (1) 'Helps clarify what good performance is (goals, criteria, expected standards);
- (2) facilitates the development of self-assessment (reflection) in learning;
- (3) delivers high-quality information to students about their learning;
- (4) encourages teacher and peer dialogue around learning;
- (5) encourages positive motivational beliefs and self-esteem;



- (6) provides opportunities to close the gap between current and desired performance;
- (7) provides information to teachers that can be used to help shape the teaching'. (p.
  - 7)

The seven principles of high-quality feedback practice can support students to become more self-regulated learners. Furthermore, most teachers give their students summative feedback rather than formative feedback (Lee, 2007), and sometimes, the teacher may intensify student anxiety by providing an insufficient waiting time after asking questions (Tsui, 1996). Overall, teachers do not have enough time to teach and provide quality feedback in the classroom (Lee, 2007).

#### 1.1.3 Overview of the Flipped Classroom

In many conventional classrooms, the primary teaching approach is lecturing, which entails 'continuous exposition by the teacher' (Bligh, 1998). However, lecturing encourages passive learning behaviour rather than active learning, limiting students' opportunities to practice their SRL strategies (Freeman et al., 2014). Self-regulation skills such as setting internal goals, applying effective learning strategies, and self-monitoring are not usually required in conventional classrooms. In some cases, students may feel embarrassed or do not want to disrupt the lecture's flow by asking questions (Yoon, Kensington-Miller, & Sneddon, 2011). After the lesson, students heavily rely on their memory, lecture notes, textbook, and maybe parents' help to complete their homework assignments (Cooper, Patall, & Robinson, 2006). The conventional classroom approach is far from ideal, but this approach has been implemented in our schools for centuries.

Over the last decade, information technology and the internet has enabled many new teaching approaches. One of these new teaching approaches is the flipped classroom, which is 'an educational technique that consists of two parts: interactive group learning activities



#### USING FEEDBACK TO DEVELOP SRL IN FLIPPED CLASSROOM 6

*inside the classroom, and direct computer-based individual instruction outside the classroom*' (Bishop & Verleger, 2013, p. 4). The flipped classroom aims to create a studentcentred learning environment in the face-to-face classroom and move teacher-centred instruction outside the classroom through online learning activities. The classroom's primary teaching approach is no longer lecturing, being replaced by active learning activities such as group discussion, presentations, and peer evaluation (Abeysekera & Dawson, 2015; Bishop & Verleger, 2013). Moreover, the flipped classroom could also free up time for more teacherstudent interactions and provide opportunities for teachers to provide feedback and for students to respond to the feedback.

# 1.1.4 Overview of Self-regulated Flipped Classroom (SRFC) Approach

The current study implemented a self-regulated flipped classroom (SRFC) approach, as inspired by Bishop and Verleger's (2013) flipped classroom framework, to free up time for active learning activities in the classroom by moving teacher-centred instruction out of the classroom with the support of online learning activities. Within the classroom, the current study adapted Nicol and MacFarlane-Dick's (2006) seven principles of high-quality feedback practice as a guideline for the teacher to provide feedback to students. The aim here was to create a feedback condition in the classroom to support student learning (Gibbs & Simpson, 2005).

# **1.2 Purpose of the Study and Research Questions**

The present study aims to investigate whether the implementation of the SRFC approach can enhance students' SRL skills in English as a second language (ESL) course. The objectives are to question whether the SRFC approach can accomplish the following:



## (1) Enhance students' SRL

Since SRL is a significant predictor of students' academic achievement and it also has a significant impact on their mental behaviours and well-being in later life (Nota, Soresi, & Zimmerman, 2004; Robson et al., 2020). So, it is of utmost importance to evaluate if the proposed SRFC teaching approach may impact students' SRL behaviour such as selfefficacy, intrinsic value, test anxiety, cognitive strategy use and self-regulation. The RQ1 will help address this issue.

**RQ1**: Is there a significant difference in students' SRL behaviour between students from SRFC and conventional self-regulated classrooms?

## (2) Foster better feedback practice

After evaluating the impact of the SRFC approach on SRL behaviour in a broader sense, the RQ2 dive into evaluating the feedback condition created by the SRFC approach. The current study hypothesised that the SRFC could provide more teacher-student interactions and more opportunities for teachers to provide quality feedback, and more time for students to respond to the feedback. The RQ2 will help verify this hypothesis by evaluating the difference in students' perceptions of feedback between the experimental and control groups.

**RQ2**: Is there a significant difference in students' perceptions of feedback between students from SRFC and conventional self-regulated classrooms?

#### (3) Enhance students' second language writing skills

On top of students' SRL behaviour and perception of feedback, academic performance is another critical indicator for evaluating the effectiveness of the SRFC approach. The RQ3 evaluates if the SRFC approach could enhance students' academic performance, in this case, the second language writing skills.



**RQ3**: Is there a significant difference in students' second language writing skills between students from SRFC and conventional self-regulated classrooms?

#### (4) Foster the use of SRL strategies

The *cognitive strategy use* is one of five SRL behaviour investigated in RQ1. The RQ1 will provide a general understanding of the students' SRL behaviour, and this study also interested to understand this particular subscale of the SRL behaviour framework. So, the RQ4 focus on investigating if the SRFC approach could foster the use of SRL strategies. Besides that, the RQ4 will provide quantitative and qualitative evidence to help triangulate the findings of RQ1, RQ2 and RQ3, so it is arranged as the final research question.

**RQ4**: Is there a significant difference in students' use of SRL strategies between students from SRFC and conventional self-regulated classrooms?

## 1.3 Significance of the Study

The findings of the current study may contribute to the existing body of literature in the following ways.

#### Connect the flipped classroom approach with SRL theory

SRL is a well-known theory. However, the connection between the flipped classroom approach and SRL theory is still worth exploring. Lai and Hwang (2016) tried to enhance the flipped classroom's effectiveness by implementing SRL elements into the online learning platform. Sun, Xie, and Anderman (2018) attempted to explain SRL relationships with mathematics achievement in a flipped classroom context. Nevertheless, most of the literature has focused on providing feedback in the flipped classroom's online context. The current study, which is distinguished from previous studies, focuses on implementing a feedback practice in the flipped classroom's face-to-face classroom context. Implementing the flipped



classroom aims to free up time to create better feedback conditions such as timely, highquality feedback and provide opportunities for students to respond to the feedback to enhance their self-regulation.

# Provide a reference for learning and teaching practices

Classroom time is always a precious learning resource. The current study proposes implementing the SRFC approach to free up face-to-face lesson time to create better feedback conditions and opportunities to respond to received feedback to support student learning (Gibbs & Simpson, 2005) without drastically reforming the current education system in Hong Kong. The present study may serve as a reference for fellow teachers to design an effective flipped classroom to enhance students' self-regulation.

#### The potential impact on learning and teaching

The current study focuses on implementing a SRFC approach in ESL writing. However, the SRFC approach could potentially be applied to other subjects.

# 1.4 Thesis Outline

The current study is organised into six chapters. Chapter One introduces the research areas: SRL, feedback, and the flipped classroom. It also states the purpose of the study, research questions and significance of the study. Chapter Two reviews the literature related to the study, such as SRL theory and self-efficacy. It reviews the relationship between feedback and self-regulation, the flipped classroom's development and the proposed SRFC approach. Chapter Three presents the methodology, research design and treatment condition. It also provides research instruments, experimental procedures and a 'how-to' analysis of the data. Chapter Four presents the results. Chapter Five provides the interpretation of the results and



provides a discussion of the study. Finally, Chapter Six summarises the findings, implications and limitations of the study.



#### **Chapter 2:** Literature Review

This chapter reviews the relevant literature related to (2.1) the definition of selfregulated learning theory, the three phases model and SRL theory's fundamental assumptions. It then reviews the strategies that high-achieving students employ to regulate their learning and the ways to support students' self-regulation. (2.2) This is followed by reviewing the relationship between self-regulation and self-efficacy. (2.3) The chapter then presents a few common challenges for students to be proficient in SRL. To overcome the challenges, (2.4) the current study implements the seven principles of high-quality feedback practice, which may support students' SRL process. Because providing high-quality feedback in the tight schedule of the classroom is quite challenging, (2.5) the flipped classroom approach is proposed to free up classroom time for more meaningful interactive classroom activities and create conditions under which feedback supports student learning. (2.6) The chapter then provides literature to support the relationship between the flipped classroom and SRL. (2.7) The current study implemented the flipped classroom into an ESL course, so it is essential to review how the flipped classroom impacts students' ESL learning. (2.8) The last section of the chapter proposes the theoretical framework—the SRFC approach.

## 2.1 Self-Regulated Learning Theory

#### 2.1.1 Self-Regulated Learning and Academic Performance

Self-regulation is an essential factor for academic achievement and effective learning (Nota et al., 2004; Pintrich, 2003). Zimmerman (1990) stated that the use of SRL strategies is tightly associated with success in learning. He suggested analysing the use of SRL strategies reported by students; in doing so, researchers could predict students' academic results with 95% accuracy. Cheng (2011) collected and analysed 6,524 students' data from 20 secondary schools in Hong Kong to study their SRL perceptions and academic performance. Cheng



reported that students' learning motivation, goal-setting, action control and learning strategies played an essential role in their learning performance. Nilson (2013) summarised some research and reported that SRL could boost students' academic performance, promote indepth thinking, help students concentrate on their learning tasks and help them grow their careers. Robson et al. (2020) performed a meta-analysis to research the relationship between self-regulation and academic performance, interpersonal attitudes, mental well-being and healthy living. Self-regulation in early childhood is positively correlated with social skills, school participation and learning success. It is also negatively correlated with internalising and outsourcing problems, peer victimisation and depressive symptoms in later life. The above research suggests that self-regulation behaviours can affect academic achievement, interpersonal behaviours and mental and physical well-being.

With such a strong connection between SRL and academic achievement, teachers should put more effort into supporting students to become self-regulated learners. Before discussing how to enhance students' self-regulation, the development of SRL theory should be reviewed first.

## 2.1.2 Development of Self-Regulated Learning Theory

In the past, students who were unable to self-regulate their learning were considered as lacking willpower, which is the 'power' to reject their environment's temptations and focus on what they were learning. Teachers instructed students to 'try harder' and resist the distractions of their classmates, friends, televisions and hobbies. Bandura (1986) has disagreed that failure to learn should be attributed to a lack of 'willpower', which was considered a fixed personal attribute that students have little control over. This kind of attribution and misconception of learning lead to self-debilitating attributions, demotivation and self-handicapping (Zimmerman & Schunk, 2003).



#### SRL from Social Cognitive Perspective

Although willpower theories were dominant in education back in the 1980s, Bandura (1986) conceptualised learning and self-regulation from a social cognitive perspective. Bandura used a triadic model to discuss the complicated relationship between personal (cognitive-affective), environmental and behavioural factors. This led to the development of cognitive and metacognitive strategies for the learning model. In this model, students' learning was no longer constrained by a fixed personal attribute; on the contrary, students were seen as being able to control their thoughts and activities to regulate their functioning and learning activities.

Bandura believed that self-regulation is teachable and recommended teaching students how to self-regulate personal, behavioural and environmental through three essential processes. The first process—self-observation—refers to students monitoring their learning performance. Second, the judgemental process refers to evaluating their performance against their personal goals, standards or criteria. Third, the self-reaction process refers to students' cognitive, emotional and concrete responses to performance outcomes, responses such as self-correction and to their emotional and motivational self-encouragement.

Many studies have indicated that self-regulation processes are highly effective in improving students' learning performance. For example, Mace and Kratochwill (1985) studied the effects of self-observation and self-judgemental processes on college students' speech fluency. Here, students who go through a self-observation and self-judgemental process show a significant decrease in verbal nonfluencies. The results support that selfobservational and self-judgemental processes are combined to facilitate students' selfregulation of their speech.



# Three Phases Model of SRL

Zimmerman (1989) built on Bandura's self-regulation foundation and developed a model to describe the self-regulation learning process. Zimmerman (2002) has defined SRL as how a learner masters their learning process. He has proposed that SRL is not just mental ability and academic performance skills but a self-regulatory process to convert mental abilities into academic performance skills. Zimmerman's model of self-regulatory processes takes place in three phases: the forethought phase, performance phase and self-reflection phase (Figure 1). The phases and subprocesses in each phase will be discussed below. Figure 1







# Forethought Phase

Task analysis and self-motivational beliefs are two significant components in the forethought phase. A task analysis includes setting goals and planning strategies. For example, in an English writing task, students develop a goal to write event programmes for the school open day and then strategically outline the genre's structure and plan to follow them. The self-motivational beliefs in this phase include self-efficacy to achieve the learning goal. Outcome expectation refers to the learning task's expected outcome. For example, the student may expect an A. Task interest/value is how valuable being successful in the task is to the student. Goal orientation is how valuable being able to master the skill is to the student. For example, this could be how important it is for the student to master a writing skill instead of completing a writing task.

#### Performance Phase

Students execute their plans at this phase, implement their learning strategies, track their progress in learning and monitor their commitment towards their learning goals. Selfcontrol refers to implementing the strategy formulated in the forethought phase. Selfinstruction, imagery, attention focusing and task strategies help the student self-regulate during the task. For example, in an English writing task, the student could self-instruct to follow the genre's structure, focusing on the writing task by reducing unnecessary conversation with peers. Task strategies refer to recognising the essential part of the study and focusing on it. Self-observation refers to self-recording individuals' learning events or self-experimentation to determine the specific learning decisions' cause and effect. For example, the student could record the time it took to complete the writing task, with the discovery that the student could complete the writing much faster if he or she did not keep



chatting with his or her peers. Self-monitoring refers to cognitive tracking of personal functioning.

#### Self-Reflection Phase

Students evaluate their learning outcome at this phase, asking what learning strategies provide the best results and why. Students can evaluate the reasons why some of those learning goals can be achieved. Self-judgement includes the self-evaluation process that the student takes to measure self-observed performance or learning outcome before comparing it against the goal, standard or criteria. Causal attribution refers to the belief of what causes the success or failure of the task. For example, if the student attributed the poor English writing performance to a fixed attribute, that may demotivate him or her to improve in the subsequent task.

In contrast, if the student attributes the failure to a poor choice of strategy, he or she can be motivated to employ a better strategy in the future. Self-reaction refers to if the student is satisfied or dissatisfied with his or her learning outcome. Adaptive/defensive responses refer to how the student copes with the learning outcome. For example, a defensive reaction may be to withdraw or avoid the opportunities to learn or perform to protect the student from experiencing failure again. An adaptive reaction refers to adjusting the personal, behavioural and environmental aspects of learning in the future.

# Fundamental Assumptions of SRL Models

Pintrich (2000) analysed numerous SRL models and summed up four fundamental assumptions in all major SRL models:



# Active, constructive assumption

Learning should be an active and constructive process, where learners should be the primary stakeholders of learning rather than the laid-back receivers of teaching. Learners actively engage in the goal-setting process. From external and internal feedback and knowledge, the learners actively formulate their own learning goals and strategies.

# The potential for control assumption

Learners should control, regulate and monitor their learning behaviour, cognition, motivation and aspects of their learning environment. Self-regulation may be supported or hindered depending on the learner's physical, behavioural, environmental and individual differences. Moreover, learners are the primary stakeholders in their learning process. Therefore, they should have choices and control over their learning strategies and activities.

# The goal, criterion or standard assumption

Learners should set goals, standards or criteria for their learning. Learners should regularly monitor their learning progress and direct their cognition, motivation and behaviour to accomplish their learning objectives.

# Mediators

The relationship between personal, environmental and performance outcomes is mediated by self-regulatory practices. Most modules assume that learners' self-regulatory activities are directly linked to the learner's achievement. Self-regulated learners can regulate their cognitive, motivation and behaviour to mediate the relationship between personal and environmental characteristics to reach their learning goals.



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Pintrich and Zusho (2002) defined SRL as 'an active constructive process whereby students set goals for their learning and monitor, regulate, and control their cognition, motivation, and behaviour, guided and constrained by their goals and the contextual features of the environment' (p. 64). This definition of SRL shares all four of the common assumptions mentioned above.

To summarise this section, self-regulated students have three key characteristics: First, they can employ SRL strategies in their learning progress. Second, students monitor their learning strategies to see if these strategies are effective and change them according to the learning outcomes. Third, students' learning and motivation to learn are interdependent processes affecting how they choose to use a particular strategy or response to their learning. SRL learners select and use SRL strategies to achieve their learning goals based on feedback about their learning progress and effectiveness (Zimmerman, 1990). Because learning strategies are essential elements of the SRL model, the next section will discuss the SRL strategies.

# 2.1.3 Self-Regulated Learning Strategies

Zimmerman and Martinez-Pons (1986) interviewed 40 high and 40 low-achieving students to study their use of SRL strategies during in-class learning while doing assignments and self-study. From the students' answers in six learning contexts, the researchers identified 14 categories of SRL strategies. They discovered that high-achieving students used 13 types of SRL strategies at a substantially higher pace. By analysing students' responses to the SRL strategies used, researchers can predict which groups a student belongs to in academic achievement with 93% accuracy. Zimmerman and Martinez-Pons defined an SRL strategy as 'actions directed at acquiring information or skill that involve agency, purpose(goals), and



instrumentality self-perceptions by a learner' (1986, p. 615). The 14 categories of SRL strategies are as follows:

*1. Self-evaluation:* refers to students evaluating the quality or progress of their work and comparing their current performance with the desired goal, for example, 'I check over my work to make sure I did it right.'

*2. Organising and transforming:* refers to the rearrangement of learning materials to improve learning, such as listing, grouping, mapping, outlining and charting (Van Blerkom, 2013), for example, 'I outline before I write my paper.'

*3. Goal-setting and planning:* refers to the learner analysing the task and developing specific learning goals, subgoals and plans. Setting subtasks and achieving subgoals can help students develop a sense of personal efficacy (Bandura & Schunk, 1981). For example, 'First, I start studying two weeks before exams, and I pace myself.'

*4. Seeking information:* refers to students finding task-related knowledge from a nonsocial source, for example, 'Before beginning to write the paper, I will go online to search as much information as possible concerning the topic.'

*5. Keeping records and monitoring:* refers to the recording of learning events, progress, results and outcomes, for example, 'I took notes of the class discussion'. 'I kept a list of the words I got wrong.'

*6. Environmental structuring:* refers to the student select, arrange and organising the learning environment to make learning easier; for example, 'I isolate myself from anything that distracts me.' 'I turned off the TV, so I can concentrate on what I am doing.'

*7. Self-consequences:* refers to the student's self-initiated rewards or punishment as the consequence of the success or failure of the learning task, for example, 'If I do well on a writing assignment, I will treat myself to a bar of chocolate.'



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8. Rehearsing and memorising: Students put in the effort to memorise learning material by overt or covert practice. Repeating learning information to oneself is a common rehearsal strategy, for example, 'In preparing for my writing task, I keep writing down the vocabulary until I remember it.'

*9-11. Seeking social assistance:* refers to students seeking help from (9) peers, (10) teachers and (11) adults, for example, 'If I have problems with my writing task, I ask a classmate to help'.

12-14. Reviewing records: refers to student review (12) tests, (13) notes or (14) textbooks to prepare for upcoming class or test, for example, 'When preparing for a test, I review my notes.'

15. Other: refers to the learning behaviour initiated by other persons such as teachers or parents, for example, 'I just do what the teacher says.'

Zimmerman and Martinez-Pons (1986; 1988; 1990) and many others have supported that SRL, specifically the use of SRL strategies, has a positive effect on academic achievement in general (Kitsantas, Steen, & Huie, 2009; Mega, Ronconi, & De Beni, 2014) in a learning ESL context (Choi, Zhang, Lin, & Zhang, 2018) or even in the flipped classroom environment (Zheng, Ward, & Stanulis, 2020). Therefore, the search for effective ways to develop students' SRL is another essential topic that will be discussed in the next section.

# 2.1.4 Developing Self-Regulated Learning

SRL is a reliable predictor of students' academic achievement and has a long-term impact on students' interpersonal behaviours, mental well-being and healthy living later in life (Robson et al., 2020); hence, helping students become self-regulated learner is essential for both students and schools. However, several studies have indicated that biological



maturation does not guarantee self-regulation development. Systemic interventions are necessary to help students develop their self-regulation skills and strategies (Orhan, 2007; Schunk & Zimmerman, 2003; Lapan et al., 2002). Pintrich (1995) and Coppola (1995) suggested that self-regulation is teachable. Through learning experience and self-reflection, students can learn to become better self-regulated learners. To help students become selfregulated learners, the teacher should provide not only subject knowledge but also SRL skill training. Pintrich (1995) consolidated five specific suggestions for both students and teachers to develop students' self-regulation skills:

# **Develop Students' Self-Monitoring**

Academic self-monitoring refers to the students observing and collecting information on their learning process and action and making changes to pursue an academic goal. Besides setting learning goals, self-monitoring also helps students adjust their goals and guide their learning effectively. Students can keep track of their academic performance by writing learning logs, keeping past assignments and record their grades. Self-monitoring is essential to help students focus on a limited number of responses; otherwise, students cannot isolate themselves from what caused the learning difficulty. Self-monitoring helps students identify effective and ineffective learning performance and strategies, prompting them to find a more suitable one. Self-monitoring also helps students better manage their learning time and fosters reflective thinking (Zimmerman & Paulsen, 1995).

Zimmerman and Paulsen (1995) proposed four self-monitoring phases to guide students to become better with the self-monitoring process. (1) baseline self-monitoring, where students collect their learning data; (2) structured self-monitoring, where students selfobserve their performance based on the course structured monitoring protocol; (3) independent self-monitoring, where students adapted the course monitoring protocol to their



learning; and (4) self-regulated self-monitoring, where students can develop monitoring protocols for their learning activities.

#### Teachers Should be Models of Self-regulated Learning

Teachers sometimes forget that their students are relative novices in the subject and that they cannot think as the teacher thinks about the subject matter. Teachers should be models of SRL and help students familiar with the subject knowledge and learning strategies. Students could become self-regulated learners by modelling teachers' ways of thinking about the subject knowledge, reasoning and learning strategies (Zimmerman & Paulsen, 1995; Hagen & Weinstein, 1995; Coppola, 1995).

## Students Need to Practice Self-regulatory Learning Strategies

Trawick and Corno (1995) developed a four-section programme to develop students' self-regulation. However, after the formal SRL training programme, students must have the opportunities and time to practice their self-regulation. The teacher can implement SRL strategies (Zimmerman & Martinez-Pons, 1986) into the learning tasks or structure the learning tasks into SRL phases (Zimmerman, 2002). Moreover, in the face-to-face classroom, the teacher can become the SRL model, guide students through the tasks and provide instant feedback. Such quality feedback and learning experience can help students become self-regulated learners.

#### **Classroom Tasks Can Be Opportunities for Student Self-regulation**

Because students need to practice SRL strategies, students should have the opportunities to control their learning goals and the learning strategies used during in-class tasks. Students must have some choice and control over their learning to develop their self-



regulation (Zimmerman, 1994), self-efficacy and mastery orientation (Hagen & Weinstein, 1995).

#### Develop Appropriate Self-efficacy

Self-efficacy refers to how confident the students are in learning or performing particular tasks (Bandura, 1986). However, self-efficacy should not be overoptimistic nor pessimistic. Hagen and Weinstein (1995) suggested that self-efficacy beliefs play an essential role in affecting students' learning behaviour.

For the students with performance goals, the learning tasks they choose depended on their self-efficacy. If the students have a high level of self-efficacy, they will seek challenging tasks, use effective SRL strategies and have high levels of persistence. If their self-efficacy is low, the student will avoid challenging tasks, use ineffective strategies and have low levels of persistence.

On the other hand, students with mastery goals would seek challenging tasks, use effective SRL strategies and have high levels of persistence, no matter if their self-efficacy is high or low. It is critical to have appropriate self-efficacy beliefs and have reasonably accurate and positive beliefs that they can successfully learn in the process (Schunk, 1994).

Self-regulation and self-efficacy are interconnected processes that significantly impact students' learning and academic performance (Gaskill & Hoy, 2002; Schunk & Zimmerman, 2007). After reviewing several studies, especially those related to both SRL and flipped classrooms, such as Ibrahim and Callaway (2014), Thai et al. (2017), Thai et al. (2020) and Hsu (2017), they all have a common conclusion that the self-efficacy plays an essential role in their study. It is worth dedicating a section to discuss the interactions between self-regulation, self-efficacy and academic performance in more detail.



#### 2.2 Self-Regulated Learning, Self-Efficacy and Academic Performance

Students' self-efficacy refers to their trust in their abilities to learn or perform particular tasks (Bandura, 1986). Self-efficacy and self-esteem are not the same. Self-esteem refers to a person's perceived sense of self-worth, whether that person respects or accepts him- or herself. Self-efficacy is a context-specific evaluation of one's ability to accomplish learning tasks (Schunk, 1991).

Self-regulation and self-efficacy are two essential and interdependent processes that affect students' learning and academic achievement. The difference between these two processes is that self-regulation is more of a strategy and motivation for achieving learning goals, while self-efficacy is how confident they can achieve those learning goals.

Students' self-efficacy level predicts their use of cognitive strategies and selfregulation, and the use of cognitive strategies predicts students' academic performance. Moreover, self-regulation and self-efficacy require similar cognitive capacities, such as goalsetting, self-monitoring, reflection and evaluation (Gaskill & Hoy, 2002; Schunk & Zimmerman, 2007).

Self-regulation, self-efficacy and academic performance are strongly related. In a study, Kitsantas and Zimmerman (2009) surveyed 223 college students. They conducted a path analysis to test the mediating relations among five variables, including previous performance accomplishments, quality of homework, self-efficacy for learning, perceived responsibility for learning and academic outcome; they found that students' SRL skills and self-efficacy were strong predictors of academic outcome.

Chemers, Hu and Garcia (2001) conducted a study of first-year university students, measuring their academic self-efficacy, optimism, stress, health and commitment to remain in school. A structural equation modelling approach was used to test the hypothesised model,


and the results suggest that academic self-efficacy was significantly and directly related to academic expectations and performance.

In a study of 205 postgraduate students, Lane, Lane and Kyprianou (2004) looked at the relationships between self-efficacy, self-esteem, past performance achievements and academic performance. According to the multiple regression results, self-efficacy mediated the relationship between previous performance achievements and academic performance. The findings support the hypothesis that self-efficacy is a strong predictor of academic achievement.

# 2.2.1 Developing Self-Efficacy

Besides self-regulation, self-efficacy is also an essential factor for successful learning. It is essential to develop students' self-efficacy alongside their self-regulation. Bandura (1977; 2008) outlined four ways to develop a person's self-efficacy, as follows:

#### **Mastery Experiences**

The most effective way of developing a strong sense of self-efficacy is through mastery experiences. When students perform well at a task previously, they are more likely to feel competent and perform well in a similar task later on. Successful experience leads to a higher level of confidence in the task, while failures undermine it, especially before selfefficacy is firmly established (Bandura, 1977; 2008).

#### Social Modelling

Students can build their self-efficacy by observing peers who are similar to them and who succeed by perseverant effort. This raises observers' beliefs that they are also capable of mastering that task. In the school context, observing how peers and teachers deal with academic problems is essential for developing self-efficacy (Bandura, 1977; 2008).



#### **Verbal Persuasion**

Verbal persuasion refers to 'pep talk' or specific performance feedback. Students are more likely to exert more effort when persuaded to believe they are capable of the task, which increases their chances of success. In the school context, teachers most likely take the persuaders' role, especially when they are trustworthy, knowledgeable and practice what they preach (Bandura, 1977; 2008).

# Physical and the Emotional States

Students' emotional states affect their perceptions of self-efficacy. When a student performs a task, they may experience physiological feedback such as tension, anxiety, weariness, sweaty palms and a racing heart. Students may misinterpret that physiological feedback as signs of incompetence or personal deficiencies. However, physiological feedback may have no relation to their capability. Hence, changing harmful misinterpretations of physiological feedback is essential in building self-efficacy (Bandura, 1977; 2008).

# 2.2.2 Summary

In sum, the four ways to develop self-efficacy are providing a successful learning experience, social modelling with peers and teachers, verbal persuasion and physiological support (Bandura, 1977; 2008). Moreover, the five ways to enhance students' self-regulation (Section 2.1.4 above) are developing their self-monitoring, providing self-regulation models, encouraging SRL strategies practice, providing self-regulation in the classroom and developing appropriate self-efficacy (Pintrich, 1995). However, to successfully help students become self-regulated learners is not as easy as implementing the above suggestions into the classroom. The following section will discuss the challenges teachers may encounter.



#### 2.3 Challenge to be Proficient in Self-Regulated Learning

Hadwin and Winne (2001) pointed out that not many learners are proficient at regulating their learning. By definition, one essential factor of SRL is to monitor and control learners' cognitive, motivation and behaviour. It is not, however, as easy as learning a new set of study skills and techniques (Butler & Winne, 1995). Below are some common challenges for students to be proficient in self-regulation.

### 2.3.1 Poorly Defined Goals

It may be difficult for students to comprehend, monitor or interpret academic tasks (Briggs, 1990). According to Hadwin (2000), misunderstanding the task and the inability to realise it might cause learning difficulties. Furthermore, learners may monitor their learning progress based on some poorly defined goals (Morgan, 1987). Ineffective standards are another issue; for example, if one's personal goals are unrealistically high, it could cause hopelessness and failure. It is essential to set proximal achievable goals to motivate learning (Zimmerman & Paulsen, 1995).

## 2.3.2 Lack of Self-monitoring

The learner may not accurately monitor their learning process at all, resulting in the inability to see the need for regulating or changing their cognition and behaviour (Schunk & Zimmerman, 1998). Sometimes, students avoid self-monitoring because they have inaccurate self-efficacy beliefs. For example, students may overestimate their readiness for an examination, so they will neglect self-testing their actual readiness. Sometimes, students may judge their self-monitored outcome against the wrong standard. For example, students may use their friends' thoughts instead of a formal assessment criterion to judge their assignment. Students with low self-efficacy may negatively react to self-monitoring outcomes; for



example, students may avoid challenging tasks or become despondent when presented with critical comments rather than using comments to improve subsequent work. However, on the other hand, over-optimistic self-efficacy beliefs may lead students to neglect regular self-monitoring (Zimmerman & Paulsen, 1995).

## 2.3.3 Inefficient Strategies

During the learning process, the learner may apply ineffective plans or strategies or engage in activities that are not meeting the task standards or achieving learning goals (Hattie, Biggs, & Purdie, 1996). Ormrod (2011) noted that students use less effective learning strategies because their personal goals conflict with effective learning. For example, the student may want to pass the assessment instead of learning the subject knowledge, so he or she may use strategies to complete the assessment as fast as possible. On the other hand, if the learning tasks only require rote recall instead of high-order thinking, SRL strategies are not required in the learning process. Students may think that using specific learning strategies require too much effort and time, even if the strategies are effective for the task. Students with low self-efficacy can wrongly assume that no learning strategies will help them complete the learning task. If students have insufficient prior knowledge about the subject, they may fail to determine which information is essential. However, Ormrod (2011) stated that the main reason that students fail to use effective learning strategies is that they have not been taught when and how to use SRL strategies in school.

# 2.3.4 Lack of Self-Regulatory Training

Numerous studies have suggested that SRL is essential for students and that SRL is teachable (Pintrich, 1995; Coppola, 1995). However, students have 'few opportunities to become self-regulated in their elementary and secondary school years, and as a result, they have few if any self-regulatory skills and strategies' (Orange, 1999, pp. 36-37). Zimmerman,



Bonner and Kovach (1996) also argued that teachers hardly provide self-regulatory training for students. Students rarely have the opportunity to practice self-regulation in conventional classrooms, where most learning tasks, methods for carrying out the task or even study partners are fixed.

#### 2.3.5 Poor Integration of SRL in Classroom

Lawson, Vosniadou, Van Deur, Wyra, and Jeffries (2019) claimed that the poor integration of SRL into the classroom was mainly because of teachers' lack of self-efficacy in promoting SRL. Diganath and Büttner (2018) found that teachers do not spend enough time teaching SRL strategies. Besides that, teaching cognitive strategies such as subject or content knowledge occupies most of the teaching time, leaving very little time for teaching metacognitive strategies. This situation was more noticeable in the primary school environment than in the secondary. Hattie and Yates (2013) reported that, in general, teachers invest around 5% of teaching time for learning strategy development, which is far from enough to affect everyday lessons.

#### 2.3.6 Summary

The main reason students lack proficiency in regulating their learning is that sometimes, students' learning goals are poorly defined; they employ ineffective learning strategies and do not keep monitoring their learning progress. Students are not trained to use SRL strategies, and SRL is poorly integrated into the conventional classroom. The challenges described in this section have explained why not every student is well equipped to selfregulate their learning (Butler & Winne, 1995; Hadwin & Winne, 2001). However, there are ways to support SRL development. Here, feedback is one of the most promising ways to reinforce SRL development.



#### 2.4 Feedback to Support Self-Regulated Learning Development

Feedback is one of the most effective ways to support students in enhancing their SRL. Feedback refers to the information provided by either a teacher, peer, parent, book or the student him- or herself regarding his or her performance or outcome. The primary purpose of feedback is to help students close the gap between their current progress and learning goals.

Effective feedback must provide the following information to support students' learning: (1) identify the learning goals, (2) indicate the current learning progress towards the learning goals and (3) discover what learning activities need to be done to make better progress (Hattie & Timperley, 2007; Nicol & MacFarlane-Dick, 2006).

As mentioned in the previous sections, a student may sometimes misunderstand the task goal, which results in a lower degree of overlap with the teacher's goal. This is why external feedback is essential. The teacher generally is the primary source of external feedback in the classroom context. Likewise, peers or computers could also be a source of feedback (Hattie & Timperley, 2007)

Students' internal learning processes could be supported, enhanced or conflict with external feedback. Students must interact with received external feedback to make it effective for their internal learning processes and to produce external learning outcomes. This external feedback information should be understood, digested, assembled and internalised by the students to significantly affect their learning (Ivanic, Clark, & Rimmershaw, 2000; Nicol & MacFarlane-Dick, 2006).

# 2.4.1 Seven Principles of High-Quality Feedback Practice

The seven principles of high-quality feedback practice are guidelines for teachers to help students become better self-regulated learners (Nicol & MacFarlane-Dick, 2006).



### 1. Help clarify what good performance is

The teacher should provide well-documented criteria sheets and performance level descriptions to set up clear learning goals; an example is a valuable reference for students to understand what good performance is. The teacher should discuss with the student the goal of the assessment (Nicol & MacFarlane-Dick, 2006). Gibbs, Simpson and Macdonald (2003) also suggested that an assessment should communicate clear and high expectations to students. For example, peer assessments with model answers, peer review and self-evaluation can help students' internalisation of learning goals, assessment criteria and evaluation standards.

# 2. Facilitate the development of self-assessment (reflection) in learning

The teacher should implement self-monitoring and self-assessment activities into a structured lesson. For example, peer assessment activities could train a student to provide objective judgement based on goals, criteria and standards; this skill could then help the student self-monitor his or her work (Nicol & MacFarlane-Dick, 2006; Gibbs et al., 2003).

#### 3. Deliver high-quality information to students about their learning

In the school context, the primary source of external feedback is from the teacher. Students can evaluate their learning progress base on the teacher's feedback and articulate their internal goals, criteria and standards with the external ones. However, not all feedback is beneficial for students; for example, delayed feedback, irrelevant feedback, feedback with no concrete information and harsh feedback are not useful (Nicol & MacFarlane-Dick, 2006). Feedback should be provided promptly, and the closer to learning it appears, the better; besides the learning outcome's strengths and weaknesses, feedback should inform students on how to modify their tactics and strategies and correct their mistakes. Quality and informatics



feedback could motivate students to set higher internal learning goals (Nicol & MacFarlane-Dick, 2006). Gibbs et al. (2003) also suggested sufficient feedback should be provided both often enough and in enough detail.

#### 4. Encourage teacher and peer dialogue around learning

External feedback is beneficial for students only if they can understand and internalise the given information. Both teachers and students need to treat the feedback process as a twoway dialogue rather than just one-way information transmission, which means students can receive the information and engage in discussion with their teacher about the feedback in detail (Nicol & MacFarlane-Dick, 2006).

#### 5. Encourage positive motivational beliefs and self-esteem

Two essential elements in the self-regulation model are motivation beliefs and selfesteem. These factors affect how students respond to the teacher's feedback and how they commit to the SRL process (Dweck, 1999). A high-stakes summative assessment could hurt students' motivation beliefs because it makes students focus on passing or failing rather than mastering the subject. Contrary to this, low-stakes continuous assessment tasks could provide students with opportunities to monitor their learning progress. The teacher could also provide feedback, and here, allowing resubmission could also help build students' self-esteem and positive motivational beliefs (Nicol & Macfarlane, 2006).

# 6. Provide opportunities to close the gap between current and desired performance

Teachers can provide formative feedback when students are still working on their assignments. To complete the feedback loop, students should respond to the feedback and use it to improve their current work (Sadler, 1989). Giving feedback allows students to revise



their work based on the given feedback; providing specific action points in the feedback is also essential to minimise the gap between current performance and the desired learning goal (Nicol & MacFarlane-Dick, 2006). Feedback should be connected to the purpose of the assignment and criteria. The teacher should make sure their feedback is understandable (Gibbs et al., 2003).

#### 7. Provide information to teachers that can be used to help shape teaching

The teachers should know how their students' progress in learning to provide useful and information-driven feedback for the student. The teacher can provide feedback when students' internal learning processes are transformed into observable learning outcomes. The teacher can then gain information about students' learning progress by setting up assessment tasks, asking questions in class and observing learning behaviour. Asking students to identify the difficulties in their assignment could also provide information to the teacher and help the teacher revise his or her feedback (Nicol & MacFarlane-Dick, 2006).

The seven principles of high-quality feedback practice (Nicol & MacFarlane-Dick, 2006) may help students become self-regulated learners. However, is it feasible to apply these feedback practices in the local primary school context? According to Lee (2007), most Hong Kong teachers provide summative feedback rather than formative feedback for their students. Students' involvement in summative feedback is minimal. Not much can be done after students receive summative feedback, yet students would like to receive formative feedback and respond to the feedback to be more involved in the feedback loop.

# 2.4.2 Challenge to Provide Quality Feedback in the Classroom Environment

The seven principles of high-quality feedback practice can support students to become more self-regulated learners. However, Hong Kong schools are often using the whole-class teaching approach (Harfitt, 2012). The average class primary school class size in 2019 was



above 27 students per class (Education Bureau, 2019). However, the average class size in the Organisation for Economic Co-operation and Development countries is 21 students per class (OECD, 2019). Because of the tight teaching schedule and large class size in Hong Kong, providing high-quality feedback in the classroom context is quite challenging.

Carless (2006) surveyed Hong Kong university students to identify the barriers to effective assessments, showing that the critical problems in the assessment were the lack of feedback and follow-up guidance. The teachers found it challenging to provide detailed feedback because of a lack of teaching time and the large class sizes. The lack of feedback on examinations was considered the norm, and students considered the grade as feedback.

Lee (2007) claimed that most teachers give their students summative feedback rather than formative feedback. As a result, students' participation is limited because not much can be done after receiving the summative feedback and final grading. On the other hand, students would like to be involved in the feedback loop, such as receiving and responding to formative feedback.

However, another research in Hong Kong reviews the reality that sometimes, teachers could intensify students' anxiety by providing an insufficient waiting time after asking questions; sometimes, those questions are difficult or impossible for students to understand. Anxiety and fear can hinder students' speaking performance and participation in the lesson. Sometimes, reticent students may want to remain silent. These above reasons have created a vicious circle in which these students become even more passive in the classroom (Tsui, 1996).

Furthermore, active and interactive learning activities are seldom conducted because teachers have indicated that they do not have enough time to teach. In-depth teacher-student interactions, such as personalised formative feedback, are rarely a possibility in the classroom



(Lee I., 2007). To address this issue, restructuring the classroom teaching approach is necessary.

#### 2.5 The Flipped Classroom

# 2.5.1 Conventional Classroom

Kerr (2001) stated that many education models in the classroom today have not been changed much since the eighteenth century. This means that teachers and students have been doing more or less the same things for centuries, and lecturing remains the dominant teaching method in school. The lecture is as useful as other teaching methods for transmitting information but not practical at promoting thought, changing attitudes or teaching skills (Bligh, 1998). Participating in a lecture does not require self-regulation, such as goal-setting, applying effective learning strategies, peer support or self-monitoring. Most learning activities in a lecture are listening, note-taking or asking questions, which is not an effective way to promote SRL (Freeman et al., 2014).

In the traditional lecturing context, even when both the teacher and students are in the same physical environment, asking the teacher questions during lectures might not be seen as constructive. Two social factors make students reluctant to ask questions during lectures. The first one is the social norm that students want to honour the teacher and other students' collective goal of getting through the teaching material. Here, students do not want to be considered the 'person who holds up the class', even though the questions may help their classmates better understand the material. The second reason is that students may fear public embarrassment and be judged by others when asking stupid questions or answering questions incorrectly. Sometimes, students who ask questions during lectures are considered brave and helpful, but sometimes, they may be regarded as showing off and holding up the class (Yoon et al., 2011).



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Outside the classroom, students are expected to complete their homework assignments independently in an environment without the teacher's instant support. Students rely on their notes, memory or textbook to help them complete their homework. Students do not receive any feedback from their peer or teacher on their homework assignment a few days after submitting that homework assignment. Students also complain about the amount of time they spend doing homework rather than leisure activities. Parents often complain about the quantity and quality of homework assigned to their kids, whether it is too difficult or too easy, and how long they spend supporting their kids. Finally, some teachers complain about the lack of parental help with students' homework and lack of time to prepare effective homework tasks and provide high-quality feedback (Cooper et al., 2006).

# 2.5.2 Development of the Flipped Classroom

The conventional classroom approach is far from ideal, but this method has been implemented in schools for centuries. Over the last decade, information and internet technology has enabled many new teaching approaches. One of those new teaching approaches is the flipped classroom.

The definition of the flipped classroom is 'an educational technique that consists of two parts: interactive group learning activities inside the classroom, and direct computerbased individual instruction outside the classroom' (Bishop & Verleger, 2013, p. 4). The flipped classroom aims to create a student-centred learning environment that allows students to develop higher-order thinking through active and interactive learning activities in the classroom while students complete preclass foundational learning through online platforms outside the classroom. Figure 2 illustrates the concept of the flipped classroom.



# Figure 2

#### The Two Parts of the Flipped Classroom



In a flipped classroom, the events that have conventionally taken place inside the classroom (mainly lecturing) now occur outside the classroom to make room for in-class activities. This approach moves the teacher-centred learning activities out of the classroom through the use of explicit instruction methods using automated or computerised learning activities such as prerecorded videos and web-based quizzes (Abeysekera & Dawson, 2015). Milman stated that (2012) the flipped classroom approach is a good fit for teaching procedural knowledge—knowledge about how to do something, as described in the revised Bloom's taxonomy (Anderson, et al., 2013). Because video lectures are as practical as live lectures at conveying basic information (Brockfeld, Müller, & de Laffolie, 2018; Vaccani, Javidnia, & Humphrey-Murto, 2016), students can study the basic learning content by watching the prerecorded videos before the lesson.

This arrangement frees up more face-to-face class time for student-centred active and interactive learning activities, especially in this study, provide more time for teachers to provide high-quality feedback and for students to respond to the received feedback. The approach's primary goal is to minimise the time spent on passive learning and maximise the time spent on active learning in the face-to-face learning environment (Abeysekera &



Dawson, 2015; Bishop & Verleger, 2013). Students must complete the preclass activities before the classroom learning to benefit from the in-class active learning activities (Abeysekera & Dawson, 2015). 'Homework' is assigned to students to complete in a classroom learning environment where students can seek instant support from their peers and teacher and where teachers can observe students' learning outcomes and provide instant, high-quality feedback to students. This approach may help to create better feedback conditions in the classroom learning environment.

# 2.5.3 Flipped Classroom and Feedback Conditions

Gibbs and Simpson (2005) outlined 10 conditions under which assessments support student learning. Seven out of ten conditions focus on how to provide better feedback conditions for students. Those seven feedback conditions and how the flipped classroom could have the potential to support those conditions are discussed below.

#### Quantity and Timing of Feedback

Gibbs and Simpson (2005) suggested that feedback should be given to students (1) often, in sufficient detail and (2) promptly enough to be helpful. However, more is not always better when it comes to feedback. It is essential to think about the feedback's nature, timing and how they received it. Some students may think of feedback as the responsibility of teachers, but the goal should be helping students establish a personal feedback mechanism for themselves (Hattie & Timperley, 2007; Lam, DeRue, Karam, & Hollenbeck, 2011)

In a conventional classroom, assignments are usually assigned as homework. As a result, students cannot receive any feedback after submitting their homework the next day and must wait for another day for the teacher to return the marked assignments. In this case, the feedback is too late and not very useful.



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In the flipped classroom, assignments are assigned to students to complete together in the classroom. Hence, teachers can provide instant feedback to students. Tactics such as model answers, peer review and self-evaluation are also practical for creating good feedback conditions. These tactics can help clarify what good performance is and 'provide opportunities to close the gap between current and desired performance' (Nicol & MacFarlane-Dick, 2006, p. 13).

# **Quality of Feedback**

Gibbs and Simpson (2005) suggested that (3) feedback should be focused on learning instead of grades, (4) feedback should also be connected to the purpose of the assessment and evaluation criteria and (5) should be understandable to students.

In a conventional classroom, assignments are expected to be completed at home. If students have any questions about the assignment's purpose and criteria, they can only rely on their memory, notes or the written description of the assignment. These assessment tactics reward memorisation rather than providing the opportunity for reflection, critical thinking and questioning.

In the flipped classroom context, assignments are expected to be worked on in the classroom together. The teacher could have plenty of opportunities to clarify the assignment's purpose and criteria. If students have any difficulties understanding the assignment, the teacher could realise this and provide feedback and maybe rephrase it to improve clarity. This interaction between the teacher and students can help students develop the ability to comprehend the teacher's feedback. It also encourages teacher-to-student and peer-to-peer dialogue around learning (Nicol & MacFarlane-Dick, 2006).



#### Student's Response to Feedback

Feedback (6) is useless if students do not receive it and do not respond to it. (7) The receiver must address it to enhance their learning performance (Gibbs & Simpson, 2005).

In a conventional classroom, most classroom time is allocated for lecturing, which forces many learning activities to be homework instead of classwork. The primary feedback form for the homework assignment is written feedback. However, written feedback is not always received, attended to, and followed up by students. In a study, only 1% of students reported they would return to the subject and spend more time on it after receiving the teachers' written feedback (Gibbs et al., 2003). Students respond to feedback at the primary school level, often in the form of 'correction', which means they copy whatever the 'corrected' answer provided by the teacher is and write it next to the wrong one. This kind of action does not help support learning.

In the flipped classroom context, students could do their 'homework' in the classroom because more classroom time could be allocated for learning activities. The teacher could provide instant feedback, and students could act on the feedback immediately. The feedback and correction can be iterated a few times before the students submit their assignments.

# 2.6 Self-Regulated Learning and the Flipped classroom

Lai and Hwang (2016) have argued that the flipped classroom approach alone might not help students because they might lack self-regulated competence to learn by themselves. Therefore, they developed an online SRL system to help learners arrange their self-learning time to be better prepared for in-class learning activities. In their study, students in the experimental group were learning through a self-regulating flipped classroom approach, while students in the control group were learning using a traditional flipped classroom approach. They found that students' self-efficacy, planning and time management skills were



improved by implementing the SRL strategy into the flipped classroom model of instruction. As a result, students' learning effectiveness improved so that their learning outcomes were better than just implementing the flipped classroom approach alone. The current study, distinguished from Lai and Hwang's study, focuses on providing feedback in a face-to-face classroom context rather than through an online system. Because teachers can provide more high-quality personalised feedback in the classroom than in an online system, the current study focuses on implementing the seven principles of high-quality feedback practice in the classroom context to develop students' SRL.

Sletten (2015) investigated the relationship between students' SRL behaviour, perceptions of the flipped model and learning achievement in a flipped classroom environment. Students' perceptions of the flipped classroom model of instruction can positively predict students' use of SRL strategy, for example, learning strategies, self-talking strategy, metacognitive, interest enhancement, learning effort and help-seeking strategy. Sletten suggested that implementing the flipped classroom approach could be successful because more classroom time can be dedicated to active learning and the constructivist teaching approach. The result indicates a strong relationship between the flipped classroom approach and students' SRL behaviour. It also provides strong evidence that active learning is essential in the flipped classroom approach. However, Sletten stated that the study's crosssectional survey design might limit the findings because of its single time point data collection. The current study collected data before and after the intervention to address this limitation, hence using a pretest/posttest quasi-experimental design.

Sun et al. (2018) studied the relationship between three essential elements of SRL and students' learning achievement to investigate how those SRL elements such as prior subject knowledge, student's self-efficacy and the implementation of learning strategies could affect mathematics courses. The results show that students' self-efficacy in mathematics learning is



significantly positively correlated with their learning performance in preclass and classroom learning environments. Likewise, the use of help-seeking strategies has positively impacted students' preclass and classroom learning achievement, indicating that students seeking help from their peers and teachers have an increased likelihood of performing well in their assignments. The authors found that during face-to-face group learning activities, those students who have a better self-efficacious in collaborating with others are more likely to seek help from others when they need it. This means students have better social skills and social relationships with peers and teachers; those students are more likely to seek help in a face-to-face learning environment. Sun et al.'s (2018) findings provide a solid foundation for the current study to use a flipped classroom approach to promote students' self-regulation.

Ng (2018) tried to implement Nicol and Macfarlance-Dick's (2006) seven principles of high-quality feedback practice into the flipped classroom environment. The results suggest that students can apply their SRL learning strategy individually and in a group environment. Ng (2018) claimed that students could achieve all seven SRL principles during the flipped classroom learning process. Ng's study provides a stepping stone for the current study to integrate MacFarlane-Dick's (2006) seven principles of high-quality feedback practice into a flipped classroom approach.

El-Senousy and Alquda (2017) conducted a prepost treatment–control experiment to examine the flipped classroom's effects on students' use of SRL strategies; they reported that the usage of students' SRL strategies significantly increased in the flipped group compared with the control group. The SRL strategies included goal-setting and planning, keeping records and monitoring, rehearsing and memorising and seeking social assistance. The authors suggested that a flipped classroom can establish a student-centred learning context and self-control and encourage students to take responsibility for their learning. A flipped classroom also provides the conditions for providing and receiving feedback; teachers no



longer are the single source of knowledge but facilitators to support SRL development. El-Senousy and Alquda's (2017) research provides a foundation to investigate the potential use of the flipped classroom approach to enhance student use of SRL strategies.

Thai, De Wever, and Valcke (2017) believed that the flipped classroom approach provides the condition for immediate feedback, resulting in higher learning performance. Later, they summarised that feedback is the key in the flipped classroom context, but their feedback focused on providing feedback in the online environment rather than the face-toface classroom (Thai, De Wever, & Valcke, 2020). The current study tries to view the flipped classroom approach from the face-to-face classroom perspective.

# 2.7 Promote Students English as Second Language (ESL) Learning with Flipped Classroom

Farah (2014) implemented the flipped classroom approach into an ESL writing course and examined students' writing performance. The results show that students' mean scores in the flipped classroom group were significantly higher than the control group. The results indicate that an improvement in students' writing performance could be attributed to the flipped classroom approach. Students also had a positive attitude towards this instructional model.

Yu and Wang (2016) studied the flipped classroom approach's effectiveness in a business ESL writing course. The results indicate that students in the flipped classroom had a significantly higher mean score in their writing test than the traditional group of students. Students in the flipped group also reported significantly higher satisfaction than the students in the traditional group.

Chun and Sathappan (2018) studied the effectiveness of implementing the flipped classroom model to teach ESL students in Malaysia and whose first language was Chinese.



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The results indicate that the mastery level of English adjectives in the flipped group was significantly higher than the control group. The authors claimed that because students in the flipped group had acquired relevant basic subject knowledge before class, they could learn new knowledge, helping them acquire new knowledge in the face-to-face lesson.

Lee and Wallace (2018) investigated whether flipped learning can promote students' ESL learning in the university. Thirty-nine students used the traditional communicative approach to learning English, and the other 40 students learned English by using the flipped classroom model of instruction. In the last three assessment tasks, students in the flipped classroom classes outperformed the control group, and there was a substantial mean score difference in the final test favouring the flipped classroom group. Most of the students in the flipped community said they liked the flipped classroom approach. According to the teachers, the students in the flipped group were also more engaged in the learning process than students in the control group. However, the above research did not take into account the interplay between self-regulation learning, feedback and ESL learning.

Ceylaner and Karakus (2018) investigated the connection between the flipped classroom model and students' readiness for self-directed learning, as well as their attitudes towards the ESL course. Here, the flipped classroom model of instruction had a positive impact on students' self-directed learning readiness and attitudes towards the course. The authors claimed that students' awareness and skills in managing their learning time were the results of implementing the flipped classroom model of instruction. Besides this, the teacher's presence to assist students when needed was seen as an essential aspect of students' selfdirected learning readiness. Ceylaner and Karakus's (2018) study provides insights into teacher-student interactions in the classroom environment.



#### 2.8 The Proposed Models—Self-Regulated Flipped Classroom

Based on the literature review of SRL, feedback and the flipped classroom approach, the overall framework is portrayed, as shown in Figure 3. The SRFC's overall structure was adapted from Bishop and Verleger's (2013) flipped classroom definition (see Section 2.5.2). The primary objective of a flipped classroom approach is to free up the time for active learning activities in the classroom by moving teacher-centred instruction out of the classroom with online learning activities. Especially in this study provide more opportunities for teachers to provide high-quality feedback and for students to respond to the received feedback. With the extra classroom learning time, this framework implements Nicol and MacFarlane-Dick's (2006) seven principles of feedback practice (see Section 2.4.1) into interactive classroom activities to support and develop students' self-regulation.

Figure 3

# The Self-Regulated Flipped Classroom Approach





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There are five research foci of the current study, flipped classroom, SRL, selfefficacy, feedback, and ESL. Table 1 summarises the above-reviewed studies. Most of the reviewed studies has focused on studying the effectiveness (Lai & Hwang, 2016; Chun & Sathappan, 2018; Yu & Wang, 2016) or perceptions (Farah, 2014; Lee & Wallace, 2018; Sletten, 2015) of the flipped classroom approach. Only two out of the reviewed studies considered the relationship between the flipped classroom, SRL, self-efficacy and feedback (Thai et al., 2017; Thai et al., 2020). None of the reviewed literature covered all foci of the current study. The current study tries to fill this gap by integrating SRL, flipped classroom, quality feedback and ESL learning into one study to create a condition where teachers can provide quality feedback to students to promote their SRL, self-efficacy and ESL writing skills.



# Table 1

Author	Title	SRL	Self- Efficacy	Feedback	ESL
Lai and Hwang (2016)	A self-regulated flipped classroom approach to improving students' learning performance in a mathematics course.	Research focus	Research focus	Briefly mentioned, online feedback	N.A.
Sletten (2015)	Investigating self-regulated learning strategies in the flipped classroom.	Research focus	N.A.	N.A.	N.A.
Sun et al. (2018)	The role of self-regulated learning in students' success in flipped undergraduate math courses.	Research focus	Research focus	Briefly mentioned	N.A.
Ng (2018)	Integrating self-regulation principles with flipped classroom pedagogy for first year university students.	Research focus	N.A.	Literature review	N.A.
El-Senousy and Alquda (2017)	The effect of flipped classroom strategy using Blackboard mash-up tools in enhancing achievement and self-regulated learning skills of university students	Research focus	N.A.	Literature review	N.A.
Thai et al. (2017)	The impact of a flipped classroom design on learning performance in higher education: Looking for the best "blend" of lectures and guiding questions with feedback	Research focus	Research focus	Research focus	N.A.
Thai et al. (2020)	Feedback: An important key in the online environment of a flipped classroom setting	Research focus	Research focus	Research focus	N.A.
Farah (2014)	The impact of using flipped classroom instruction on the writing performance of twelfth grade female Emirati students in the applied technology high school (ATHS)	Research focus	N.A.	Briefly mentioned	Research focus
Yu and Wang (2016)	Academic achievements and satisfaction of the clicker-aided flipped business English writing class	Literature review	Literature review	N.A.	Research focus
Chun and Sathappan (2018)	The effectiveness of using flipped classroom approach to teach adjectives to Malaysian year 4 Chinese ESL learners	N.A.	N.A.	N.A.	Research focus
Lee and Wallace (2018)	Flipped learning in the English as a foreign language classroom: Outcomes and perceptions.	N.A.	N.A.	Briefly mentioned	Research focus
Ceylaner and Karakus (2018)	Effects of the flipped classroom model on students' self-directed learning readiness and attitudes towards the English course	Briefly mentioned	N.A.	N.A.	Research focus

Summary of Research Focus of the Reviewed Literature





# Chapter 3: Methodology

#### 3.1 Research Questions and Hypotheses

The current study aims to investigate whether implementing the SRFC approach can enhance students' SRL skills in ESL courses. The study's objectives are to discover whether the SRFC approach can enhance students' self-regulated learning, foster better feedback practice, enhance students' ESL writing skills and foster the use of SRL strategies. The following research questions and hypotheses were developed to investigate the interplay between SRL, the flipped classroom approach and feedback practice in an ESL course:

**RQ1**: Is there a significant difference in students' SRL behaviour between students from SRFC and conventional self-regulated classrooms?

H1<sub>0</sub>: There is no difference in students' SRL between students participating in a

SRFC and conventional self-regulated classroom after controlling for students' SRL scores before the intervention.

H1<sub>1</sub>: There is a difference in students' SRL between students participating in a SRFC and conventional self-regulated classroom after controlling for students' SRL scores before the intervention.

**RQ2**: Is there a significant difference in students' perceptions of feedback between students from SRFC and conventional self-regulated classrooms?

H2<sub>0</sub>: There is no difference in students' perception of feedback between students participating in a SRFC and conventional self-regulated classroom after controlling for students' perceptions of feedback score before the intervention.

H2<sub>1</sub>: There is a difference in students' perception of feedback between students participating in a SRFC and conventional self-regulated classroom after controlling for students' perceptions of feedback scores before the intervention.



**RQ3**: Is there a significant difference in students' second language writing skills between students from SRFC and conventional self-regulated classrooms?

H3<sub>0</sub>: There is no difference in students' second language writing skills between students participating in a SRFC and conventional self-regulated classroom after controlling for students' second language writing skills score before the intervention. H3<sub>1</sub>: There is a difference in students' second language writing skills between students participating in a SRFC and conventional self-regulated classroom after controlling for students' second language writing skills score before the intervention.

**RQ4**: Is there a significant difference in students' use of SRL strategies between students from SRFC and conventional self-regulated classrooms?

H4<sub>0</sub>: There is no difference in students' use of SRL strategies between students participating in a SRFC and conventional self-regulated classroom after controlling for students' second language writing skills score before the intervention. H4<sub>1</sub>: There is a difference in students' use of SRL strategies between students participating in a SRFC and conventional self-regulated classroom after controlling for students' second language writing skills score before the intervention.

# 3.2 Research Design

The current study was carried out using a pretest, posttest nonequivalent quasiexperimental study design using a mixed-method approach. The main reason for using a quasi-experimental research design is when it is not possible, practical or ethical to randomise individuals or groups to control and experimental groups. A control group with similar baseline (preintervention) characteristics as the experimental group is expected in a quasiexperimental research design. The data collected from the control group in the posttest would be the outcomes if the intervention had not been implemented. Hence, the intervention could



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be assumed to have caused the difference in the outcome between the experimental and control groups (Grimshaw, Campbell, Eccles, & Steen, 2000; White & Sabarwal, 2014). This kind of research design can be used to study the relationships in a natural social setting, which is an advantage in the current study because it was not feasible to randomise students in a class setting. However, on the other hand, the limitation of this research design is the nonrandomisation of the participants, which makes it difficult to attribute the differences between the groups to the intervention (Grimshaw et al., 2000).

A quasi-experimental design has been used in numerous studies to investigate the aspects of SRL in the flipped classroom learning context. For example, Lai and Hwang (2016) used the quasi-experimental design to evaluate the effectiveness of the flipped classroom approach for improving students' learning performance in a mathematics course. Tsai, Shen, Chiang, and Lin (2017) conducted a quasi-experiment to examine the effects of flipped learning and online academic help-seeking on students computing skills.

In the current study, it was impossible to randomise students into an experimental or control group because they were already assigned to their class at the beginning of the semester.

#### 3.3 Participants

Convenience sampling was used to select the target school because I collaborated with the cooperating teachers on unrelated projects from 2017 to 2019. The cooperating teacher was able to execute the instructional design for the current study. Two other teachers were involved in the teaching process, and each teacher was responsible for both the experimental and control group of each grade (Table 2).



# Table 2

Teachers Arrangement

Teacher	Control Group	Experimental Group
Cooperating teacher	Englis	sh Subject Panel
Teacher A	Class 3B	Class 3C
Teacher B	Class 4C	Class 4B

Four classes—primary three and four—from a Hong Kong primary school were invited to participate in the current study. The total population of the selected classes was 90. Two classes (Classes 3C and 4B) were in an experimental group (n=43), which implemented the SRFC approach for their English lessons. In contrast, the other two classes (Class 3B and 4C) were in the control group (n=47), which applied a self-regulated approach in a conventional setting. Before the study, parental consent was obtained, and the parents were told that the study would centre on students' SRL performance. All students (43) in the experimental group agreed to participate. For the control group, 43 out of 47 agreed to participate. There were 86 students in total who agreed to participate. Primary three and four students were chosen because they are mature enough to carry out SRL. They could regulate themselves to finish the assigned learning tasks, such as watching the videos at home before returning to school. Furthermore, they could manage and apply the SRL skills that the teacher taught in the classroom.

The target school has a multicultural background. As shown in Table 3, in terms of genders, there were more male students (55%) than female students (45%), which held true in both the control (56% male and 44% female) and experimental groups (53% male and 47% female). Most students were 7 (29%), 8 (31%) and 9 (29%) years old. The rest of the students were in the range of 10–12 years old. In terms of race, 30% were Chinese, 27% of Hong Kong, 20% of Pakistani, 7% Nepali, 7% Philippine and 6% Indian, with the rest being from Indonesia and Bangladesh. Almost all of the native languages were non-English. The



experimental and control groups shared similar characteristics, maintaining homogeneity between groups and enhancing the findings' generalisability.

# Table 3

Demographic	Information	of the	Participants	

Characteristic Control Group		ol Group	Experimental Group		Total	
	п	%	п	%	n	%
		Gen	der			
Female	19	44%	20	47%	39	45%
Male	24	56%	23	53%	47	55%
Total	43	100%	43	100%	86	100%
		Ag	ge			
7	12	28%	13	30%	25	29%
8	14	33%	13	30%	27	31%
9	12	28%	13	30%	25	29%
10	5	12%	2	5%	7	8%
11	0	0%	1	2%	1	1%
12	0	0%	1	2%	1	1%
Total	43	100%	43	100%	86	100%
		Ra	ce			
China	15	35%	11	26%	26	30%
Hong Kong	13	30%	10	23%	23	27%
Pakistan	7	16%	10	23%	17	20%
Nepal	3	7%	3	7%	6	7%
The Philippines	1	2%	5	12%	6	7%
India	2	5%	3	7%	5	6%
Indonesia	2	5%	0	0%	2	2%
Bangladesh	0	0%	1	2%	1	1%
Total	43	100%	43	100%	86	100%

# **3.4 Treatment Condition**

The following sections describe the experimental group's treatment condition-SRFC (Section 3.4.2)—and the control group's treatment condition—SRL in the conventional classroom (Section 3.4.3). First, the SRL strategies were implemented in the lesson design for both the experimental and control groups (Section 3.4.1).



#### 3.4.1 Implementing SRL Strategies in Lessons Design

I worked with the cooperating teacher to implement the SRL strategies and feedback practices in the lesson design. To minimise the deviation of using the SRL strategies and feedback practices during the teaching process between the teacher A and B, I participated in all the co-planning meetings with the cooperating teacher, teacher A and B during the experimental period to enhance and unify their understanding of the SRL strategies, feedback practices and the design of the lesson. Since the teacher A and B were responsible for teaching both the experimental and control groups of their own grade, the implementation of SRL strategies and feedback practices between the two groups should not significantly vary.

In English writing, self-regulated learners can apply various writing strategies in three writing stages: planning (forethought phase), writing (performance phase) and reviewing (self-reflection phase) (Bai & Guo, 2018). The SRL strategies are highlighted in blue in Table 5, and the details of the lesson design are described below.

# 1. Forethought Phase

In the planning stage (forethought phase), the teacher stated the goals for that lesson with students, for example, guiding students to use a specific sentence structure in writing:

'Students will be able to write events programmes; students will be able to use '*will*' to write future plans; students will be able to use '*How about* ...?', '*What about* ...?' and '*Let*'s ...' to make suggestions'.

The teacher then guided the students to set their personal writing goals, think about the sentence structure, plan out required key words, organise writing ideas and discuss the topic with peers (Bai & Guo, 2018; Bai, Hu, & Gu, 2014). The teacher then directed students to participate in active learning exercises in pairs or groups to consolidate what they had learned in the previous lessons. The active learning activities provided an opportunity for



teacher-student and student-student dialogue around learning. At this stage, the teacher helped students clarify what good performance should be in this writing task and encouraged peer dialogue around the learning topic (Nicol & MacFarlane-Dick, 2006).

#### 2. Performance Phase

The students were instructed to transform their thoughts into phrases, sentences and paragraphs during the writing stage (performance phase). The students applied different writing strategies, such as text-generating strategies, following the sentence structure and reviewing the textbook.

The teachers guided students to monitor their learning and self-observe their performance based on the course's structured monitoring protocol (Zimmerman & Paulsen, 1995). For example, a checklist of the sentence structure was presented to support students' self-monitoring (Table 4). Nimehchisalem, Chye, and Jaswant Singh (2014) proposed that a checklist is a valuable tool to support students in diagnosing their weaknesses and improving their ESL writing performance. Furthermore, the students in the current study could also apply self-evaluation strategies such as checking if their writing met the teacher's requirement and paying attention to their spelling and grammar (Bai & Guo, 2018; Bai et al., 2014).

The writing task was designed to have three iteration parts to allow the students to apply the required writing skill multiple times, and each iteration allowed the students to close the gap between current and desired writing goals. The teacher also provided highquality feedback information to students when they were writing. By observing the students as they wrote, the teacher could better understand the students' learning progress and shape the subsequent teaching (Nicol & MacFarlane-Dick, 2006).



# Table 4

Sample Checklist of the Sentence Structure

Check Box	Sentence Structure
	Did you write in complete sentences?
	Did you write in the future tense?
	Did you use correct punctuation?
	Did you use 'How about, What about, Let's' to make suggestions?
	Did you write the time of the event?
	Did you write the place for the event?

# 3. Self-Reflection Phase

Finally, in the review stage (self-reflection phase), the teacher guided students to perform self-evaluations and self-reflect on their writing (e.g., Did you meet your personal writing goals? Did your writing meet that lesson's goals?). The students evaluated their writing against the lesson requirement, and they also read their writing to look for potential mistakes (Bai & Guo, 2018; Bai et al., 2014). This process could facilitate students' self-evaluation skills, potentially providing critical information for the teacher to shape future teaching (Nicol & MacFarlane-Dick, 2006).

By doing this, students should be more aware of how they should learn throughout the forethought, performance and self-reflection phases, and by receiving quality feedback from the teacher in real-time, the students could become better self-regulated learners.



Table 5

Objective	<b>Feedback Practice</b>	Teaching procedures
After the process	1. 'Help clarify what	Planning
writing, students	good performance is'.	SRL - Forethought Phase
will be able to:	4. 'Encourage teacher	• [Goal-setting and planning] Thinking about what
1. Write events	and peer dialogue	words, phrases and sentences structure to use
programmes;	around learning'.	• [Seeking social assistance: peers] Discussing the topic
2. Will be able		with others before writing
to use 'will'		• [Organising and transforming] Thinking about how to
to write		organise your ideas
future plans;		1. The teacher sets goals with students:
3. Will be able		Write events programmes
to use 'How		• Students will be able to use 'will' to write
about?',		future plans
What about		• Students will be able to use 'How about?',
? and		'What about?' and 'Let's' to make suggestions
Let S to		2. Clarify the expected writing outcome
make		• Show an example of events programmes
suggestions		• Show an example of use 'will' to write future
		plans
		• Show an example of suggestions
		3. Practice with your partner using the above sentence
		structure
		• Try to make three suggestions by using 'How
		about?', 'What about?' and 'Let's'.
		4. Organise writing ideas
		• Think about the events' sequence (which one
		first?), what time and where to hold the events
	3. Deliver high-	Writing
	quality information to	SRL - Performance Phase
	students about their	• [Reviewing records] Reading teacher's requirements
	fearning .	• [Reviewing records] Review sentence structure from
	or portunities to close	the textbook
	the gap between	• [Organising and transforming] Sticking to what has
	current and desired	been planned when whiting
	performance'.	• [Self-evaluation] Paying attention to spelling and
	7. 'Provide	grammar when writing
	information to	• [Sen-evaluation] Checking whether the composition
	teachers that can be	1 To write the first paragraph's first suggestion try to
	used to help shape	nut the above ideas into complete sentences. Remember to
	teaching'.	use the future tense
		2 Let us try to write the second and third suggestions
		and complete the events programmes
	2. 'Facilitate the	Reviewing
	development of self-	SRL - Self-Reflection Phase
	assessment	• [Self-evaluation] Check whether the writing meets the
	(reflection) in	teacher's requirements
	learning'.	• [Self-evaluation] Read the writing to look for mistakes
	7. 'Provide	• The teacher guides students to do self-evaluations
	information to	e e e e e e e e e e e e e e e e e e e
	teachers that can be	
	used to help shape	
	teaching'.	

Sample of a Lesson Designed Based on the Three SRL Phases and Suggested Feedback Practice



# 3.4.2 Teaching Methods in Experimental Group: Self-Regulated Flipped Classroom Approach

The SRFC approach was implemented in the experimental group.

# Prelesson Learning Design

When preparing a lesson, the teacher used the digital whiteboard software

ExplainEverything to create short prelesson learning videos to cover the learning content; the purpose of these short prelesson learning videos was to replace part of the lecturing usually carried out in the face-to-face lessons. Prelesson learning videos were uploaded to the school's website. Table 6 shows a summary of the prelesson learning video for the experimental group. The total estimated prelesson self-study duration for the experimental group over 14 lessons (490 minutes) was 50 minutes.

# Table 6

Pr	imary 3		Primary 4		
Topics	Video Runtime (minutes)	Estimated Self-study Duration (minutes)	Topics	Video Runtime (minutes)	Estimated Self-study Duration (minutes)
Video 1: Vocab	1:14	10	Video 1: Vocab	1:51	10
Video 2: Simple past tense – Time expressions	4:08	5	Video 2: Time expressions of the future tense	3:14	5
Video 3: Simple past tense – Form and usage of regular verbs	11:04	15	Video 3: Form and usage of the future tense	9:25	15
Video 4: Object pronouns	12:06	20	Video 4: Suggestion: Introducing 'How about?', 'What about?' and 'Let's '	11:19	20
		Total: 50			Total: 50

A Summary of Prelesson Videos for the Primary 3 and 4 Learning Units

The teacher assigned students to watch the prelesson learning videos to self-study

before the lesson, and the students were required to complete worksheet assignments related



to those videos. The teacher also encouraged students to apply SRL strategies during selfstudy, such as note-taking, rehearsing (e.g., revisiting those learning videos), planning and organising their learning, managing their use of time and location for learning, setting goals and monitoring their learning progress.

The active learning activities provided more feedback opportunities than the lectureteaching mode. Table 7 compares the time allocation for lecture-teaching and active learning in the experimental and control groups. During the 14 lessons (490 minutes) of the experimental period, approximately 97% of classroom time in the experimental group was allocated for active learning activities compared with 84% in the control group. Hence, around 13% more time was allocated to active learning in the flipped experimental group.

Table 7

*Comparison of Time Allocation for Lecture-based Teaching and Active Learning in the Experimental and Control Groups* 

Lesson	Experimenta	l Group	Control Group		
	Active Learning (mins)	Lecturing (mins)	Active Learning (mins)	Lecturing (mins)	
1-2	70	0	55	15	
3-4	70	0	60	10	
5	20	15	20	15	
6-7	70	0	50	20	
8-9	70	0	50	20	
10-11	70	0	70	0	
12-14	105	0	105	0	
Total	475 (97%)	15 (3%)	410 (84%)	80 (16%)	

# Face-to-face Learning Design

The teacher started the face-to-face lesson with warm-up activities to activate the students' prior knowledge and motivation. The teacher asked the students some critical questions to check their understanding and clarify some misunderstandings, and this also provided students with the incentive to finish watching the prelesson videos and the worksheet before the lesson.



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Then, the teacher set the learning goals for the lesson (e.g., Students will be able to use '*How about* ...?', '*What about* ...?' and '*Let's* ...' to make suggestions) by providing an example to clarify what good performance is (e.g., We use '*How about*' to make suggestions. We can also say the suggestion in two other ways: '*What about making a birthday cake for him*?' and '*Let's make a birthday cake for him*'.) The teacher then encouraged the students to set their own learning goals for the lesson (e.g., I would be able to use '*How about*', '*what about*' and '*Let's*' to make suggestions.)

The teacher then introduced the main learning activities, such as picture card matching, reading, role-play, presentation and group discussions. After introducing the learning goal and activities, the students were required to apply SRL strategies, such as make a plan, formulate learning strategies, self-monitoring their working progress and selfassessing their outcomes in the group or individually.

Students were asked to complete 'homework' during the lesson so that they could seek instant support from their peers and teacher in the face-to-face learning environment. The teacher observed students' learning outcomes and provided high-quality feedback following the seven quality feedback practices (Nicol & MacFarlane-Dick, 2006). The suggested feedback practices are highlighted in green in the teaching plan (Table 5).

# 3.4.3 Teaching Methods in the Control Group: SRL in Conventional Classroom Approach

In the present study, SRL in the conventional classroom approach refers to implementing SRL strategies in the lesson design (Section 3.4.1) in a conventional classroom, such as setting goals in the planning stage, self-monitoring in the performance stage and self-evaluating in the reflection stage. The teacher also provided high-quality feedback following the seven quality feedback practices (Nicol & MacFarlane-Dick, 2006).


However, the control group teacher had to spend more time teaching the subject knowledge during the face-to-face lessons (Table 7).

In the control group, no specific tasks were assigned before the lesson. The lack of preparation before the lesson may be a common shortcoming of the conventional classroom teaching practices. Furthermore, the objective of this study is to figure out if the flipped classroom approach could deliver a better result and evaluate if this is the potential solution to overcome this issue. After the lesson, assignments were assigned to students as homework to complete outside the classroom.

#### 3.5 Instrumentation

# 3.5.1 The revised Chinese version of the Motivated Strategies for Learning Questionnaire (MSLQ-RCV)

The first research question was as follows: 'Is there a significant difference in students' SRL behaviour between students from SRFC and conventional self-regulated classrooms?' The current study applied the revised Chinese version of the Motivated Strategies for Learning Questionnaire (MSLQ-RCV) (Lee, Yin, & Zhang, 2010) as the research instrument to study whether the implementation of the SRFC approach could enhance students' SRL.

The Motivated Strategies for Learning Questionnaire (MSLQ) was developed by Pintrich et al. (1991). The MSLQ is a self-reporting questionnaire widely used to analyse students' motivational beliefs. The original MSLQ contains two sections, with a total of 81 items: students' motivational beliefs and learning strategies. The motivation section contains 31 items distributed into six subscales: 1) intrinsic value, 2) extrinsic value, 3) task value, 4) control beliefs about learning, 5) self-efficacy and 6) test anxiety. Under the learning strategies section, there are 50 items distributed into nine subscales: 1) rehearsal, 2)



elaboration, 3) organisation, 4) critical thinking, 5) metacognitive self-regulation, 6) time and study environment, 7) effort regulation, 8) peer learning and 9) help-seeking. Each item is scored on a 7-point Likert-type scale. The scores of each subscale are the average score of each item within that subscale. The 15 MSLQ subscales' modular design can be used together or individually to fit the research design's needs. Later, Pintrich and de Groot (1990) developed a shorter version of the MSLQ with only 44 items with five dimensions, including 1) self-efficacy, 2) intrinsic value, 3) self-regulation strategy, 4) test anxiety, and 5) cognitive strategy use. Duncan and McKeachie (2005) found the MSLQ to be an accurate, realistic and ecologically valid assessment of students' motivation and learning strategies.

Rao and Sachs (1999) translated the MSLQ into Chinese (MSLQ-CV) and evaluated the factor structure of the MSLQ-CV by using confirmatory factor analysis. In this version, the self-regulation strategy and cognitive strategy use in the MSLQ were combined into one factor, and the reverse-coded items were discarded.

Lee et al. (2010) proposed the revised version of the MSLQ-CV (MSLQ-RCV) by adding two factors: extrinsic value and peer learning. The MSLQ-RCV includes six factors (1) self-efficacy, (2) intrinsic values, (3) extrinsic value, (4) test anxiety, (5) strategy use and (6) peer learning. Each item is scored on a 5-point Likert-type scale from 1 (not at all true for me) to 5 (very true for me). This MSLQ-RCV version was used in the current study because it has been modified to fit and validated for Chinese students in Hong Kong. Students in both groups completed the pre- and post-MSLQ-RCV questionnaire in class. It took approximately 20–30 minutes to complete, depending on the student's level (Appendix A).

#### 3.5.2 Assessment Experience Questionnaire (AEQ)

The second research question asked the following: 'Is there a significant difference in students' perceptions of feedback between students from SRFC and conventional self-



regulated classrooms?' The current study adopted the Assessment Experience Questionnaire (AEQ) (Gibbs & Simpson, 2003) to collect students' perceptions of feedback experience to investigate whether the SRFC approach could foster better feedback practice.

Gibbs and Simpson (2005) outlined 11 conditions under which assessments support student learning. The original AEQ contains 36 items in six scales to measure whether those 11 conditions could be achieved. However, the current study only focused on the scales that are directly related to feedback. The current study only used three subscales—18 out of 36 items of the AEQ-to gather students' perception of feedback experience. (1) Quantity and timing of feedback: a high score shows that students perceive that they received sufficient feedback promptly. A low score suggests that students consider the feedback too little and too late to improve and enhance their learning. (2) Quality of feedback: A high score signifies that students can understand the feedback, which provides information on grades, clarifies misunderstandings and suggests methods for improvement. A low score signifies that the feedback is incomprehensible, not useful and only provides grade information. (3) Use of feedback: A high score indicates that the feedback can support students' subsequent learning, assessment and revision. A low score indicates that the feedback has limited usage in followup learning (Appendix B). A 5-point Likert scale was used to answer these questions, ranging from strongly disagree to strongly agree. The AEQ was given in class, and it took approximately 15–20 minutes to complete, depending on the student's level.

### 3.5.3 English as a Second language (ESL) Writing Skill Test

The third research question asked the following: 'Is there a significant difference in students' second language writing skills between students from SRFC and conventional self-regulated classrooms?' To investigate whether the SRFC approach could enhance students' ESL writing skills, all participants took an ESL writing skills test. These tests were developed



by the target school's English teachers and were aligned with the course objectives and standards. Students' scores were reported as the score for content, language and total (the sum of content and language), and these scores were the dependent variables in the current study. The ESL writing skills test was given in class using the process writing approach during the last three lessons of the research period. The ESL writing skills test marking criteria are provided in Appendix C, which was modelled from the Education Bureau Territory-wide System Assessment Primary English Language Writing Marking Scheme. Since the involved teachers know the research purpose, to reduce the potential bias of marking the ESL writing skills test, teachers A and B first marked their own classes independently. Then the cooperating teacher carried out the moderation process, and all marked papers were reviewed to make sure they were in line with the criteria. The name, class and class number on each paper was masked by a sticky note to increase the fairness of the moderation process. No systematic marking error was reported, and only a few minor misalignments cases were resolved by discussion between the teachers.

### 3.5.4 Self-Regulated Learning Interview Schedule (SRLIS)

The fourth research question asked the following: 'Is there a significant difference in students' use of SRL strategies between students from SRFC and conventional self-regulated classrooms?' To investigate whether the SRFC approach could foster the use of SRL strategies, the current study adopted the Self-Regulated Learning Interview Schedule (SRLIS) (Zimmerman & Pons, 1986) to obtain students' SRL strategies in response to eight learning contexts, such as preparing for a test, handling homework assignments and learning environment control (Appendix D) (Zimmerman & Martinez-Pons, 1990):

'Teachers usually expect students' homework assignments to be completed correctly or accurately, especially in subjects such as mathematics. Many of



these assignments must be completed at home without the help of a teacher. What do you do to make sure you complete your homework correctly? What do you do if you do not understand the work the teacher has assigned?' (Zimmerman & Martinez-Pons, 1990, p. 53)

Students were asked to state their strategy for each learning context and their consistency in using that strategy, ranging from 'seldom', 'occasionally', 'frequently' to 'most of the time'. The SRLIS interview took between 10 and 20 minutes to complete, depending on the student's level. Their responses were recorded on a recorder and then transcribed. Each mentioned strategy was categorised based on the 15 categories of SRL behaviour identified by Zimmerman and Pons (1986) (Appendix E). In the current study, category 14 was modified to include the teachers' online material because using computers, mobile devices, and the internet is a part of students' daily lives (Effeney, Carroll, & Bahr, 2013).

### 3.6 Experimental Procedure

Table 8 shows a summary of the experimental procedure. First, the students in both groups completed the prequestionnaires for the MSLQ-RCV and AEQ and the pre-ESL writing ability test. For the experimental group, the teachers used the SRFC approach, while for the control group, they used SRL in a conventional classroom. The students in both groups were assigned to complete the post-ESL writing skills test and postquestionnaires (MSLQ-RCV & AEQ) at the end of the experimental period. The teachers read out the questions of the MSLQ-RCV and AEQ and explain to the students when they have any questions. A few students from each group were interviewed using the SRLIS as the interview tool.



Summary of the Experimental Procedure: Pretest, Class Information, Experimental Duration, Teaching Approaches and Posttest

	Experimental Group	Control Group				
Pretest	MSLQ-RCV pretest AEQ pretest ESL writing skill pretest					
Class	3C 4B 43 students	3B 4C 43 students				
Experimental Duration	14 lessons (490 mins)					
Teaching Approaches	Self-regulated Flipped Classroom Approach	Self-regulated Learning in Conventional Classroom Approach				
Estimated Self-study Duration	50 mins	/				
Posttest	MSLQ-RCV posttest AEQ posttest ESL writing skill posttest Self-regulated Learning Interview Schedule (SRLIS)					

# 3.7 Methods of Analysis

The independent variables examined in RQ1, RQ2 and RQ3 were the teaching approaches (SRFC approach for the experimental group and implementing an SRL approach in a conventional classroom for the control group).

An analysis of covariance (ANCOVA) was used to analyse the data for RQ1, RQ2 and RQ3. For RQ1, the dependent variable was the SRL behaviour score from the MSLQ-RCV posttest. The MSLQ-RCV pretest was the covariate. For RQ2, the dependent variable was the students' self-reported perceptions of feedback from the AEQ posttest. The AEQ pretest was the covariate. For RQ3, the dependent variable was students' second language writing skills from the ESL writing posttest. The ESL writing pretest was the covariate.



The main goal of using an ANCOVA was to remove the effect of the variable (called a covariate), which is not part of the experiment but that may affect the outcome. A more reliable result of the independent variable's effect could be provided by removing the covariate effect. The preintervention SRL behaviour, perception of feedback and second language writing skills could affect the postintervention outcome. The current study used the ANCOVA to evaluate the effect of the independent variables (teaching approaches) on the dependent variable (RQ1: SRL behaviour, RQ2: perception of feedback and RQ3: second language writing skills) by eliminating the effect of the covariate (preintervention SRL behaviour, perception of feedback and RQ3: second language writing skills) by eliminating the effect of the covariate (preintervention SRL behaviour, perception of feedback and RQ3: second language writing skills) by eliminating the effect of the covariate (preintervention SRL behaviour, perception of feedback and second language writing skills, respectively).

The data collected from the SRLIS triangulated the results collected from research RQ1, RQ2 and RQ3. To help answer RQ4, because of the small sample size, the Mann-Whitney U test was used to analyse the results from the SRLIS. Students responses were recorded and transcribed. Each mentioned strategy was categorised based on the 15 categories of SRL behaviour identified by Zimmerman and Pons (1986) (Appendix E).

### 3.8 Summary

The independent variables were the teaching approaches (SRFC approach for the experimental group and implementing the SRL approach in a conventional classroom for the control group). The dependent variables were (**RQ1**) the students' self-reported SRL behaviour scores from the MSLQ-RCV (Lee et al., 2010), (**RQ2**) the students' self-reported perception of feedback from the AEQ (Gibbs & Simpson, 2003) and (**RQ3**) students' second language writing skills from an ESL writing test. The data collected from the SRLIS (Zimmerman & Pons, 1986) triangulated the results gathered from RQ1, RQ2 and RQ3 and helped answer RQ4. Table 9 summarises the research questions, measures, analysis method, sample size and time expected for each assessment.



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# Table 9

Research Questions, Instruments Used, Analysis, Target Sample Size and the Time Commitments Expected

Research Questions	Instruments Used	Analysis	Target Sample size	Time commitments expected
RQ1: Is there a significant difference in students' SRL behaviour between students from SRFC and conventional self-regulated classrooms?	<ul> <li>An adapted version of MSLQ-RCV:</li> <li>Self-efficacy,</li> <li>Intrinsic value,</li> <li>Test anxiety,</li> <li>Cognitive strategy uses and</li> <li>Self-regulation.</li> </ul>	The one-way analysis of covariance (ANCOVA)	<ul> <li>43 students from the experimental group</li> <li>43 students from the control group</li> </ul>	20-30 minutes
RQ2: Is there a significant difference in students' perceptions of feedback between students from SRFC and conventional self- regulated classrooms?	<ul> <li>An adapted version of AEQ:</li> <li>Quantity and timing of feedback,</li> <li>Quality of feedback and</li> <li>Use of feedback</li> </ul>	The one-way analysis of covariance (ANCOVA)	<ul> <li>43 students from the experimental group</li> <li>43 students from the control group</li> </ul>	15-20 minutes
RQ3: Is there a significant difference in students' second language writing skills between students from SRFC and conventional self-regulated classrooms?	<ul><li>ESL writing test:</li><li>Content,</li><li>Language, and</li><li>Total.</li></ul>	The one-way analysis of covariance (ANCOVA)	<ul> <li>43 students from the experimental group</li> <li>43 students from the control group</li> </ul>	Four lessons
RQ4: Is there a significant difference in students' use of SRL strategies between students from SRFC and conventional self- regulated classrooms?	An adapted version of SRLIS: • Strategy consistency	<ul> <li>Mann- Whitney U test</li> <li>Qualitative analysis</li> </ul>	• Four upper- ranked students and four lower- ranked students from each group, 16 students, were invited to participate in the SRLIS interview	10-20 minutes



#### **Chapter 4: Results**

The purpose of the current study is to investigate whether the SRFC approach can enhance students' SRL skills in an ESL course. There were a total of 90 students in the targeted classes, 43 students in the experimental group and 47 students in the control group. All students in the experimental group agreed to participate in the experiment. In the control group, 43 out of 47 students consented to participate. Those data from the nonparticipating students were removed. This chapter is organised according to the four objectives of the study. For each objective, the related research question and results of each context are presented. SPSS statistical package (version 23) was used to analyse the data.

#### 4.1 Effects on Students' Self-regulated Learning

The first research question investigated if the SRFC approach can enhance students' SRL. The MSLQ-RCV (Lee et al.2010) was used as the research instrument to answer this research question.

#### 4.1.1 Instrument Reliabilities MSLQ-RCV

The MSLQ-RCV's internal consistency was reported by Lee et al. (2010) as .80 (selfefficacy), .84 (intrinsic values), .74 (extrinsic value), .73 (test anxiety), .90 (strategy use) and .84 (peer learning). In the current study, Cronbach's alpha values were computed for both the pre- and posttests. Table 10 shows the Cronbach's alpha values computed for the current study and what Lee et al. (2010) reported. The Cronbach's alpha values of the subscale of extrinsic value in the pretest (.60) and test anxiety (.57 pretest .55 posttest) fell below .70. This may because there were only four items in both subscales. The Cronbach's alpha values of the rest of the subscales of the pre- and post-MSLQ-RCV were above or approaching .80,



hence showing good internal consistency. Overall, the MSLQ-RCL had good internal reliability.

# Table 10

	Number of items	Pretest α	Posttest α	Lee et al. (2010) $\alpha$
Self-efficacy	7	.79	.84	.80
Intrinsic values	9	.83	.83	.84
Extrinsic value	4	.60	.70	.74
Test anxiety	4	.57	.55	.74
Strategy use	19	.89	.88	.90
Peer learning	7	.82	.79	.84

Comparison of the Internal Consistency Analysis of the MSLQ-RCV

### 4.1.2 Assumptions

The following tests were performed to ensure no breach of the assumptions of the ANCOVA.

# Linearity Assumption

First, for each independent variable (the experimental and control group), the dependent variable (postintervention MSLQ-RCV subscale score) should be linearly related to the covariate (preintervention MSLQ-RCV subscale score). The plotted grouped scatterplots of the dependent variable against the covariate grouped on the independent variable were used to test the above assumption. There was a linear relationship between each pre- and postintervention MSLQ-RCV subscale score for both the experimental and control groups. According to Figure 4, the scatterplot slopes are similar, suggesting that the assumption of homogeneity of the slopes is met, despite the lines not being exactly parallel.





Grouped Scatterplot of the Post-MSLQ-RCV Against the Pre-MSLQ-RCV Grouped on the Intervention of Each Subscale





# Homogeneity of Regression Slopes

Second, the assumption of homogeneity of the regression slopes was tested. This assumption checks that there is no interaction between the covariate (preintervention MSLQ-RCV subscale score) and the independent variable (the experimental and control groups). There was homogeneity of the regression slopes in all subscales because the interaction terms were not statistically significant (Table 11), so there was no breach of the assumption of homogeneity of the regression slopes.

### Table 11

Dependent Variable	Source	Type III Sum of	df	Mean Square	F	Sig.
		Squares				
Postself Efficacy	Group * Preself Efficacy	.087	1	.087	0.195	.660
Postintrinsic Value	Group * Preintrinsic Value	.100	1	.100	0.483	.489
Postextrinsic Value	Group * Preextrinsic Value	.790	1	.790	1.739	.191
Posttest Anxiety	Group * Pretest Anxiety	.216	1	.216	0.447	.506
Postcognitive Strategy	Group * Precognitive	.037	1	.037	0.192	.662
Postpeer Learning	Group * Prepeer Learning	.192	1	.192	0.595	.443

Tests of Homogeneity of the Regression Slopes of the MSLQ-RCV

# Homogeneity of Variances

A one-way ANCOVA assumes that the residuals' variance is equal for all independent variables (experimental and control groups). Levene's test was conducted to evaluate if the dataset violated this assumption. There was homogeneity of the variances in all dependent variables, except for postpeer learning (p = .023). When the data do not have homogeneity of variance, the postpeer learning data were logarithmically transformed to check if the heterogeneity could be removed in the ANCOVA model. After the transformation, the postpeer learning (Log10 Transformed) met the homogeneity of variances assumption (p = .114). The following analysis and report will be based on the



transformed data (Table 12). After the transformation, no dependent variables violated the homogeneity of variances assumption.

### Table 12

Levene's	Test	for the	MSLO-RCV	<sup>v</sup> Dependent	Variables
Levene s	I CSI		MOLQ RCT	Dependent	<i>r</i> u <i>r</i> u <i>o</i> i co

Dependent Variable	F	df1	df2	Sig.
Postself Efficacy	3.733	1	84	.057
Postintrinsic Value	0.110	1	84	.741
Postextrinsic Value	3.330	1	84	.072
Posttest Anxiety	0.003	1	84	.957
Postcognitive Strategy Use	0.361	1	84	.550
Postpeer Learning	5.388	1	84	.023*
Postpeer Learning (Log10 Transformed)	2.552	1	84	.114

Note. \**p* < .05

# Normality of the Overall Model Residuals

A one-way ANCOVA assumes the samples are normally distributed. The results of the Shapiro–Wilk's test indicate that the standardised residuals for the overall model were normally in the self-efficacy, intrinsic value and test anxiety subscales of the MSLQ-RCV. However, the extrinsic value, cognitive strategy use and peer learning subscales were not normally distributed (Table 13). Nevertheless, a one-way ANCOVA is reasonably robust to deviations from normality. In general, nonnormality does not substantially affect the Type I error rate, actual alpha level and power (Olejnik & Algina, 1984).



	Kolmogo	orov-Smir	nova	Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Postself Efficacy	.059	86	.200	.989	86	.679
Postintrinsic Value	.081	86	.200	.979	86	.189
Postextrinsic Value	.110	86	.012	.955	86	.004*
Posttest Anxiety	.053	86	.200	.985	86	.397
Postcognitive Strategy Use	.109	86	.013	.948	86	.002*
Postoeer Learning log10	.098	86	.041	.948	86	.002*

### Tests of Normality for the MSLQ-RCV

Note. \**p* < .05

#### 4.1.3 Descriptive Statistics

The descriptive statistics are discussed first because these provide an overall impression and give general information about the variables used to answer the first research question (Table 14). The dependent variables were the postintervention MSLQ-RCV subscales of self-efficacy, intrinsic value, extrinsic value, test anxiety, cognitive strategy use and peer learning. The covariates are the corresponding preintervention MSLQ-RCV subscale. The independent variables were the SRFC approach for the experimental group and the conventional self-regulated classroom for the control group.

Unadjusted means are presented, unless otherwise stated. The students' self-efficacy scores after the intervention were higher in the experimental group (M = 3.56, SD = 0.75) compared with in the control group (M = 3.30, SD = 0.94). The students' intrinsic value scores after the intervention were also higher in the experimental group (M = 3.91, SD = 0.73) compared with in the control group (M = 3.75, SD = 0.81). The students' extrinsic value scores after the intervention were lower in the experimental group (M = 3.88, SD = 0.85) compared with in the control group (M = 3.90, SD = 0.93). The students' test anxiety scores after the intervention were lower in the experimental group (M = 3.08, SD = 0.79)



compared with in the control group (M = 3.44, SD = 0.91). The students' cognitive strategy use scores after the intervention were higher in the experimental group (M = 3.74, SD = 0.64) compared with in the control group (M = 3.63, SD = 0.74). Finally, the students' peer learning use scores after the intervention were lower in the experimental group (M = 3.45, SD = 0.88) compared with in the control group (M = 3.49, SD = 0.87).

### Table 14

Variable (subscale of MSLQ-RCV)		Expe	rimental Group N=43	Control Group N=43		
		Mean	Std. Deviation	Mean	Std. Deviation	
Self-Efficacy	Pre	3.34	0.81	3.49	0.76	
	Post	3.56	0.75	3.30	0.94	
Intrinsic Value	Pre	3.95	0.66	3.86	0.85	
	Post	3.91	0.73	3.75	0.81	
Extrinsic Value	Pre	3.99	0.69	4.06	0.91	
	Post	3.88	0.85	3.90	0.93	
Test Anxiety	Pre	3.05	0.91	3.14	0.97	
	Post	3.08	0.79	3.44	0.91	
Cognitive Strategy Use	Pre	3.69	0.62	3.66	0.82	
	Post	3.74	0.64	3.63	0.74	
Peer Learning	Pre	3.48	0.91	3.68	0.94	
	Post	3.45	0.88	3.49	0.87	

Unadjusted Descriptive Statistics for MSLQ-RCV

# 4.1.4 ANCOVA Results of Research Question One

The assumptions were met to conduct a one-way ANCOVA analysis. The results are listed below.

# Self-Efficacy

After adjusting for the preintervention self-efficacy scores, a statistically significant difference in the postintervention self-efficacy scores between the experimental and control groups was found, F(1, 83) = 6.215, p = .015, partial  $\eta^2 = .070$  (Table 15). The partial eta-squared ( $\eta^2$ ) was used to measure the effect size, which indicates how strong the relationship



is between the independent and dependent variables. Based on Green and Salkind (2014), the partial eta-squared can be interpreted as having a small (.010), medium (.060) and large effect (.140). The partial effect size ( $\eta^2$ ) was .070, which was above medium, indicating how much the teaching approach can explain the variance in students' self-efficacy score. The adjusted means for students' self-efficacy scores in the experimental group was M = 3.611, SE = .101, which was significantly higher than the control group M = 3.253, SE = .101.

#### **Intrinsic Value**

After adjusting for the preintervention intrinsic value scores, there was no significant difference in the postintervention intrinsic value scores between the experimental and control groups, F(1, 83) = .686, p = .410, partial  $\eta^2 = .008$  (Table 15). The partial effect size ( $\eta^2$ ) was .008, which was small, indicating that the teaching approaches had little relationship with the variance in the students' intrinsic value scores. The adjusted means for the students' intrinsic value scores in the experimental group were M = 3.875, SE = .069 and M = 3.794, SE = .069 for the control group, indicating the difference was not statistically significant.

#### **Extrinsic Value**

After adjusting for the preintervention extrinsic value scores, there was not a statistically significant difference in the postintervention extrinsic value scores between the experimental and control groups, F(1, 83) = .088, p = .768, partial  $\eta^2 = .001$  (Table 15). The partial effect size ( $\eta^2$ ) was .001, which was small, indicating that the teaching approaches had little relationship with the variance in the students' extrinsic value scores. The adjusted means for the students' extrinsic value scores in the experimental group were M = 3.911, SE = .103 and M = 3.868, SE = .103 for the control group, indicating the difference was not statistically significant.



### Test Anxiety

After adjusting for the preintervention test anxiety scores, there was a statistically significant difference in the postintervention test anxiety scores between the experimental and control groups, F(1, 83) = 4.492, p = .037, partial  $\eta^2 = .051$  (Table 15). The partial effect size  $(\eta^2)$  was .051, which was just below the medium, indicating the teaching approaches had a medium relationship with the variance in the students' test anxiety scores. The adjusted means for the students' test anxiety scores in the experimental group was M = 3.100, SE = .106, which was significantly lower than the control group's scores (M = 3.417, SE = .106).

### Cognitive Strategy Use

After adjusting for the preintervention cognitive strategy use scores, there was no statistically significant difference in the postintervention cognitive strategy use scores between the experimental and control groups, F(1, 83) = 1.005, p = .319, partial  $\eta^2 = .012$  (Table 15). The partial effect size ( $\eta^2$ ) was .012, which was small, indicating that the teaching approaches had little relationship with the variance in the students' cognitive strategy use scores. The adjusted means for the students' cognitive strategy use scores in the experimental group were M = 3.732, SE = .066 and M = 3.638, SE = .066 for the control group, indicating the difference was not statistically significant.

#### **Peer Learning**

After adjusting for the preintervention peer learning scores, there was no statistically significant difference in the postintervention peer learning scores between the experimental and control groups, F(1, 83) = .745, p = .390, partial  $\eta^2 = .009$  (Table 15). The partial effect size ( $\eta^2$ ) was .009, which was small, indicating that the teaching approaches had little relationship with the variance in the students' peer learning scores. The adjusted means for



the students' cognitive strategy use scores in the experimental group was M = 3.520, SE = .087 and M = 3.414, SE = .087 for the control group, indicating the difference was not statistically significant

# Table 15

Descriptive Statistics and Results for the ANCOVA Between-Subjects Effect of the MSLQ-

RCV
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		Adjusted Mean	Mean	SD	F	р	η2
Post-self-efficacy	Experimental	3.61	3.56	0.75	6.215	.015*	.070
	Control	3.25	3.30	0.94			
Postintrinsic Value	Experimental	3.88	3.91	0.73	0.686	.410	.008
	Control	3.79	3.75	0.81			
Postextrinsic Value	Experimental	3.91	3.88	0.85	0.088	.768	.001
	Control	3.87	3.90	0.93			
Posttest Anxiety	Experimental	3.10	3.08	0.79	4.492	.037*	.051
	Control	3.42	3.44	0.91			
Postcognitive Strategy Use	Experimental	3.73	3.74	0.64	1.005	.319	.012
	Control	3.64	3.63	0.74			
Postpeer Learning	Experimental	3.52	3.45	0.88	0.745	.390	.009
	Control	3.41	3.49	0.87			

Note. \**p* < .05

### 4.1.5 Summary

The results of the ANCOVA were significant in two subscales of the MSLQ-RCV: self-efficacy, F(1, 83) = 6.215, p < .05, and test anxiety, F(1, 83) = 4.492, p < .05. The adjusted means for the students' self-efficacy scores in the experimental group was significantly higher than the control group, and the students' test anxiety in the experimental group was significantly lower than in the control group. The results indicate that the null hypothesis of RQ1 (H1<sub>0</sub>) should be rejected. The partial  $\eta^2$  of self-efficacy was .070, and the partial  $\eta^2$  .051 for test anxiety suggested a medium relationship between the teaching



approaches and corresponding dependent variable after controlling for the MSLQ-RCV pretest scores.

#### 4.2 Effects on Students' Perceptions of Feedback

The second research question investigated if the SRFC approach can affect students' perceptions of feedback. The AEQ (Gibbs & Simpson, 2003) was used as the research instrument to answer this research question.

### 4.2.1 Instrument Reliabilities AEQ

Gibbs and Simpson (2003) reported the Cronbach's alpha coefficient values of the scales of the AEQ as 0.87 for quantity and timing of feedback, 0.77 for quality of feedback and 0.74 for the use of feedback. In the current study, an internal consistency analysis was conducted on three scales of AEQ in the pre- and posttests. Because of a low Cronbach's alpha coefficient being observed in two scales, six items were deleted from the 18 items on the AEQ to increase the internal consistency. Items 3, 4 and 6 were deleted from the quantity and timing of the feedback scale. Items 7, 11 and 12 were deleted from the quality of the feedback scale. It was no surprise that the reliability was lower in the pretest because the students had not yet experienced this experiment's feedback practices. Besides that, Segers, Gijbels and Thurlings (2008) also reported that low alpha coefficients of the AEQ were observed in their study. Therefore, the results in the current study were interpreted with caution. Table 16 presents the Cronbach's alpha values computed for the current study and what Gibbs and Simpson (2003) and Segers et al. (2008) reported in their studies.



	The current study			Gibbs and S (2003	Simpson 3)	Segers et al. (2008)		
	Number of items	Pretest α	Posttest α	Number of items	α	Number of items	α	
Quantity and timing of feedback	3	.59	.61	6	.87	6	.58	
Quality of feedback	3	.66	.73	6	.77	5	.61	
Use of feedback	6	.62	.64	6	.74	4	.55	

### Comparison of Internal Consistency Analysis of the AEQ

### 4.2.2 Assumptions

A few tests were performed to ensure that there was no breach of the assumptions of the ANCOVA analysis.

### **Linearity Assumption**

First, for each independent variable (experimental and control group), the dependent variable (postintervention AEQ scale score) should be linearly related to the covariate (preintervention AEQ scale score). The plotted grouped scatterplots of the dependent variable against the covariate grouped on the independent variable were used to test the above assumption. There was a linear relationship between each pre- and postintervention AEQ scale score for both the experimental and control groups. According to Figure 5, the scatterplot slopes are similar, suggesting that the assumption of homogeneity of the slopes is met despite the lines not being exactly parallel.





Figure 5 Grouped Scatterplot of the Post-AEQ Against Pre-AEQ Grouped on the Intervention of Each Scale.

Homogeneity of the Regression Slopes

Second, the assumption of homogeneity of the regression slopes was tested. This assumption checks that there is no interaction between the covariate (preintervention AEQ score) and independent variable (experimental and control groups). There was homogeneity of the regression slopes for all scales because the interaction terms were not statistically significant (Table 17), and there was no breach of the assumption of homogeneity of the regression slopes.



Dependent Variable	Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Postquantity and timing of feedback	Group * Prequantity and timing of feedback	1.950	1	1.950	3.295	.073
Postquality of feedback	Group * Prequality of feedback	1.577	1	1.577	3.219	.076
Postuse of feedback	Group * Preuse of feedback	0.185	1	0.185	0.448	.505

### Tests of Homogeneity of the Regression Slopes for the AEQ

### Homogeneity of Variances

There was homogeneity of the variances in all dependent variables, as assessed by Levene's test of homogeneity of variance (Table 18).

Table 18

Levene's Test for the AEQ Dependent Variables

Dependent Variable	F	df1	df2	Sig.
Postquantity and timing of feedback	1.060	1	84	.306
Postquality of feedback	0.108	1	84	.743
Postuse of feedback	0.183	1	84	.670

# Normality of Overall Model Residuals

A one-way ANCOVA assumes the samples are normally distributed. The results from the Shapiro–Wilk's test indicated the standardised residuals for the overall model were normally distributed in the use of the feedback subscale of the AEQ. However, the quantity and timing of feedback and quality of feedback subscales were not normally distributed (Table 19). Nevertheless, the one-way ANCOVA is reasonably robust to deviations from normality (Olejnik & Algina, 1984).



Tests of Normality for the AEQ

	Kolmogor	nova	Shapiro-Wilk			
	Statistic df		Sig.	Statistic	df	Sig.
Postquantity and timing of feedback	.112	90	.007	.962	90	.010*
Postquality of feedback	.137	90	.000	.910	90	.000*
Postuse of feedback	.093	90	.051	.980	90	.188

Note. \**p* < .05

#### 4.2.3 Descriptive Statistics

In RQ2, the dependent variables were the postintervention AEQ scale: quantity and timing of feedback, quality of feedback and use of feedback. The covariates were the corresponding preintervention AEQ scale. The independent variables were the SRFC approach in the experimental group and the conventional self-regulated classroom in the control group (Table 20). Unadjusted means are presented unless otherwise stated. Students' self-rated quantity and timing of feedback scores after the intervention were lower in the experimental group (M = 3.50, SD 1.01) than in the control group (M = 3.35, SD = 0.87). Students' self-rated quality of feedback scores after the intervention were higher in the experimental group (M = 4.16, SD = 0.79) compared within the control group (M = 3.84, SD = 0.92). Students' self-rated use of feedback scores after the intervention were also higher in the experimental group (M = 3.65, SD = 0.81) compared within the control group (M = 3.26, SD = 0.79).



Variable (scale of AEQ)		Expe	primental Group N=43	С	ontrol Group N=43
			Std. Deviation	Mean	Std. Deviation
Quantity and timing of	Pre	3.57	0.84	3.41	0.95
feedback	Post	3.50	1.01	3.57	0.87
Quality of feedback	Pre	4.07	0.96	3.90	0.99
	Post	4.16	0.79	3.84	0.92
Use of feedback	Pre	3.60	0.81	3.41	0.72
	Post	3.65	0.81	3.26	0.79

Unadjusted Descriptive Statistics for the AEQ

# 4.2.4 ANCOVA Result of Research Question Two

The assumptions had been met to conduct an ANCOVA analysis. The ANCOVA analysis of each subscale of the AEQ is listed below.

# Quantity and Timing of Feedback

After adjustment for preintervention quantity and timing of feedback score, no statistically significant difference was found in the postintervention quantity and timing of feedback scores between the experimental and control groups F(1, 83) = .837, p = .363, partial  $\eta^2 = .010$ ) (Table 21). The partial effect size ( $\eta^2$ ) was .010, which was small, indicating that the teaching approaches had little relationship with the variance in students' quantity and timing of feedback scores. The adjusted means for students' quantity and timing of feedback in the experimental group was M = 3.458, SE = .119 and M = 3.612, SE = .119 for the control group. The difference was not statistically significant.

# **Quality of Feedback**

After adjusting for the preintervention quality of feedback scores, there was no statistically significant difference in the postintervention quality of feedback scores between



the experimental and control groups, F(1, 83) = 2.127, p = .148, partial  $\eta^2 = .025$  (Table 21). The partial effect size ( $\eta^2$ ) was .025, which was small, indicating that the teaching approaches had little relationship with the variance in the students' quality of feedback scores. The adjusted means for the students' quality of feedback scores in the experimental group were M= 4.112, SE = .108 and the control group M = 3.888, SE = .108. The difference was not statistically significant.

### **Use of Feedback**

After adjusting for the preintervention use of feedback scores, there was a statistically significant difference in the postintervention use of feedback scores between the experimental and control groups, F(1, 83) = 4.033, p = .048, partial  $\eta^2 = .046$  (Table 21). The partial effect size ( $\eta^2$ ) was .046, which was below the medium, indicating the teaching approaches had a medium relationship with the variance in the students' use of feedback scores. The adjusted means for the students' use of feedback scores in the experimental group were M = 3.593, SE = .096, which was significantly higher than the control group M = 3.318, SE = .096.

Table 21

		Adjusted Mean	Mean	SD	F	р	η2
Postquantity and Timing of Feedback	Experimental	3.46	3.50	1.01	.837	.363	.010
	Control	3.61	3.57	0.87			
Postquality of Feedback	Experimental	4.11	4.16	0.79	2.127	.148	.025
	Control	3.89	3.84	0.92			
Postuse of Feedback	Experimental	3.59	3.65	0.81	4.033	.048*	.046
	Control	3.32	3.26	0.79			

Descriptive Statistics and Results for the ANCOVA Between-Subjects Effect of the AEQ

Note. \**p* < .05



#### 4.2.5 Summary

The ANCOVA results were significant in the use of the feedback scale of the AEQ, F (1, 83) = 4.033, p < .05. The adjusted means for the students' use of feedback scores in the experimental group was significantly higher than the control group. The results indicate that the null hypothesis of RQ2 (H2<sub>0</sub>) should be rejected. The partial  $\eta^2$  of the use of feedback scale was .046, suggesting a medium relationship between the teaching approaches and corresponding dependent variable after controlling for the AEQ pretest scores.



#### 4.3 Effects on Students' Second Language Writing Skills

The third research question was asked to investigate if the SRFC approach can affect students' second language writing skills. An ESL writing skills test was used to answer this research question

### 4.3.1 Instrument Reliabilities ESL Writing Skills Test

In the current study, an internal consistency analysis was conducted on the ESL writing skills test in the pre- and posttests. The Cronbach's alpha values of the ESL writing skills pretest were .899 and .885 for the ESL writing skills posttest, hence showing good internal consistency. The ESL writing skills scores were reported as the score for content, language and total (the sum of content and language).

#### 4.3.2 Assumptions

An assumption test was performed to ensure no breach of the assumptions of the ANCOVA analysis.

#### Linearity Assumption

First, for each independent variable (experimental and control group), the dependent variable (ESL writing skill posttest) should be linearly related to the covariate (ESL writing skill pretest). The plotted grouped scatterplots of the dependent variable against the covariate grouped on the independent variable were used to test the above assumption. There was a linear relationship between each pre- and postintervention AEQ scale score for both the experimental and control groups. According to Figure 6, the scatterplot slopes are similar, suggesting that the assumption of homogeneity of slopes has been met, despite the lines not being exactly parallel.



Figure 6

Grouped Scatterplot of the ESL Writing Skill Posttest Against the ESL Writing Skill Pretest as Grouped on Each Scale's Intervention.



Homogeneity of Regression Slopes

Second, the assumption of homogeneity of the regression slopes was tested. This assumption checks that there is no interaction between the covariate (ESL writing skill pretest) and independent variables (experimental and control group). There was homogeneity in all the subscales' regression slopes because the interaction terms were not statistically significant (Table 22), and there was no breach of the assumption of homogeneity of the regression slopes.



Dependent Variable	Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Postcontent	Group * Precontent	.134	1	0.134	0.350	.556
Postlanguage	Group * Prelanguage	.865	1	0.865	2.258	.137
Post-total	Group * Pretotal	1.950	1	1.950	1.740	.191

### Tests of Homogeneity of the Regression Slopes for the ESL Writing Skills Test

### Homogeneity of Variances

There was homogeneity of variances in all dependent variables, as assessed by Levene's test (Table 23).

### Table 23

### Levene's Test for the ESL Writing Skills Test Dependent Variables

Dependent Variable	F	df1	df2	Sig.
Postcontent	.198	1	84	.657
Postlanguage	.016	1	84	.898
Posttotal	.027	1	84	.870

# Normality of Overall Model Residuals

A one-way ANCOVA assumes the samples are normally distributed. The results from the Shapiro–Wilk's test indicated standardised residuals for the overall model were normally distributed in the total scale of the ESL writing skills test. However, the content and language scale were not normally distributed (Table 24). Nevertheless, the one-way ANCOVA is reasonably robust to deviations from normality (Olejnik & Algina, 1984).



	Kolmogor	nova	Shapiro–Wilk			
	Statistic df		Sig.	Statistic	df	Sig.
Postcontent	.174	86	.000	.923	86	.000*
Postlanguage	.128	86	.001	.954	86	.004*
Posttotal	.065	86	.200	.986	86	.460

Tests of Normality for the ESL Writing Skills Test

Note. \**p* < .05

#### 4.3.3 Descriptive Statistics

In RE3, the dependent variables were the ESL writing skills posttest score, which was composed of content and language. The covariates were the corresponding ESL writing skills posttest score. The SRFC approach and conventional self-regulated classroom approach were the independent variables (Table 25).

The unadjusted means are presented unless otherwise stated. The students' content scores after the intervention were higher in the experimental group (M = 2.35, SD 0.650) compared with in the control group (M = 2.26, SD = 0.621). The students' language scores after the intervention were also higher in the experimental group (M = 2.49, SD = 0.668) compared with in the control group (M = 2.16, SD = 0.652). The students' total scores after the intervention were also higher in the experimental group (M = 4.84, SD = 1.194) compared with in the control group (M = 4.42, SD = 1.096).



Variable		Expe	erimental Group N=43	Control Group N=43		
		Mean	Std. Deviation	Mean	Std. Deviation	
Content	Pre	1.60	0.660	1.56	0.590	
	Post	2.35	0.650	2.26	0.621	
Language	Pre	1.49	0.631	1.40	0.623	
	Post	2.49	0.668	2.16	0.652	
Total	Pre	3.09	1.171	2.95	1.112	
	Post	4.84	1.194	4.42	1.096	

Unadjusted Descriptive Statistics for the ESL Writing Skills Test

# 4.3.4 ANCOVA Result of Research Question Three

The assumptions had been met to conduct an ANCOVA analysis. The analysis is given below.

### Content

After adjusting for the preintervention ESL writing skills content scores, there was no statistically significant difference in the postintervention ESL writing skills content scores between the experimental and control groups, F (1, 83) = .366 p = .547, partial  $\eta^2$  = .004 (Table 26). The partial effect size ( $\eta^2$ ) was .004, which was small, indicating that the teaching approaches had little relationship with the variance in students' ESL writing skills content scores in the experimental group were M = 2.343, SE = .094 and M = 2.262, SE = .094 for the control group, which was not statistically significant.



#### Language

After adjusting for the preintervention ESL writing skills language scores, the experimental and control groups had a statistically significant difference in their postintervention ESL writing skills language scores, F(1, 83) = 4.685, p = .033, partial  $\eta^2 = .053$  (Table 26). The partial effect size ( $\eta^2$ ) was .053, which was just below the medium, indicating the teaching approaches had a medium relationship with the variance in the students' ESL writing skills language scores. The adjusted means for the students' ESL writing skills language scores in the experimental group was M = 2.472, SE = .095, which was significantly higher than the control group, M = 2.180, SE = .095.

#### Total

The total score refers to the sum of the content and language scores. After adjusting for the preintervention total ESL writing skills scores, there was no statistically significant difference in the postintervention total ESL writing skills scores between the experimental and control groups, F(1, 83) = 2.517, p = .116, partial  $\eta^2 = .029$  (Table 26). The partial effect size ( $\eta^2$ ) was .029, which was small, indicating that the teaching approaches had little relationship with the variance in the students' total ESL writing skills scores. The adjusted means for the students' total ESL writing skills scores in the experimental group were M =4.810, SE = .162 and M = 4.446, SE = .162 for the control group, which was not statistically significant.



Descriptive Statistics and Results for the ANCOVA Between-Subjects Effect of the ESL

		Adjusted Mean	Mean	SD	F	р	η2
Postcontent	Experimental	2.34	2.35	0.65	.366	.547	.004
	Control	2.26	2.26	0.62			
Postlanguage	Experimental	2.47	2.49	0.67	4.685	.033*	.053
	Control	2.18	2.16	0.65			
Posttotal	Experimental	4.81	4.84	1.19	2.517	.116	.029
	Control	4.45	4.42	1.10			

### Writing Skills Test

Note. \**p* < .05

### 4.3.5 Summary

The ANCOVA results were significant in the ESL writing skills test's language scale, F(1, 83) = 4.685, p < .05. The adjusted mean for the students' ESL writing skills language scores in the experimental group was significantly higher than in the control group. The results indicate that the null hypothesis of RQ3 (H3<sub>0</sub>) should be rejected. The partial  $\eta^2$  of the language scale was .053, suggesting a medium relationship between the teaching approaches and corresponding dependent variables after controlling for the ESL writing skills pretest scores.

# 4.4 Effects on Students' Use of Self-Regulated Learning Strategies

The fourth research question was asked to investigate if the SRFC approach can foster the use of SRL strategies. The SRLIS data were used to triangulate the results of RQ1, RQ2 and RQ3.



### 4.4.1 Participants

After the students completed the ESL writing skills posttest, they were ranked in order based on their test scores. Four upper-ranked students and four lower-ranked students from each group—16 students—were invited to participate in the SRLIS interview. However, the COVID-19 outbreak prevented me from interviewing all the targeted students. Eventually, I could only arrange four from the experimental and three from the control groups to participate in the interview via video meeting software. The students were coded to maintain anonymity. A and C were upper-ranked and S and M lower-ranked students from the experimental group; J was an upper-ranked and L and N lower-ranked students from the control group (Table 27).

Table 27

SRLIS Interview Participants' Information

Student code	А	С	S	М	J	L	Ν		
Group	-	Experim	ental Gro	up	Control Group				
Gender	Male	Male	Male	Female	Female	Female	Male		
ESL writing skills posttest	Up	per	Lo	ower	Upper	Low	rer		

### 4.4.2 Instrument Reliabilities SRLIS

The students were asked to state their strategy for each learning context and their consistency in using that strategy. Each mentioned strategy was categorised based on the 15 categories of SRL behaviour (Zimmerman & Pons, 1986). The students' responses were recorded, and two coders were trained to classify the students' strategies to reach above 80% mutual agreement. They coded the responses individually and then compared the coded data to locate nonagreed classifications. The coders re-evaluated those responses to develop a classification that they both agreed upon (Zimmerman & Martinez-Pons, 1990). Strategy



consistency (frequency of each mentioned strategy) is the most comprehensive method to score the SRLIS (Zimmerman & Martinez-Pons, 1986; Effeney et al., 2013).

### 4.4.3 Assumptions

Because of the small sample size (n=7), a Mann-Whitney U test was used to analyse the students' use of SRL strategies in the two teaching approaches.

# 4.4.4 Descriptive Statistics

For each mentioned strategy, the student strategy consistency weights were based on the following scale: seldom = 1, occasionally = 2, frequently = 3 and most of the time = 4. Table 28 presents the SRLIS strategy consistency and mean.



SRL strategies	Experimental Group Control Group					oup			
	А	С	S	М	Mean	J	L	Ν	Mean
Self-evaluation	15	0	0	9	6	8	8	3	6.3
Organising and transforming	4	4	0	0	2	2	0	0	0.7
Goal setting and planning	0	4	0	4	2	4	4	1	3.0
Seeking information	0	8	0	1	2.3	0	0	1	0.3
Keeping records and monitoring	15	7	4	0	6.5	0	4	4	2.7
Environmental structuring	8	8	5	1	5.5	7	4	1	4.0
Self-consequences	0	0	0	0	0	8	0	0	2.7
Rehearsing and memorising	12	11	1	8	8	2	2	4	2.7
Seeking social assistance peers	0	2	2	0	1	0	4	2	2.0
Seeking social assistance from teachers	0	0	6	0	1.5	11	4	5	6.7
Seeking social assistance from adults	0	2	14	4	5	9	4	5	6.0
Reviewing records: notes	0	0	6	0	1.5	7	4	0	3.7
Reviewing records: tests	0	0	0	0	0	0	4	0	1.3
Reviewing records: textbooks	11	7	7	7	8	12	4	0	5.3
Other	0	0	0	0	0	0	0	0	0.0
Total	65	53	45	34		70	46	26	

### The Consistency and Mean of Students' SRLIS Strategy Use

# 4.4.5 Mann-Whitney U Result of Research Question Four

A Mann-Whitney U test was used to determine if there were differences in the students' use of SRL strategies between students from the SRFC and conventional self-regulated classrooms. The distributions of SRL strategies used by the experimental and control groups were not similar. The SRL strategies used for the experimental and control groups were not statistically significantly different in all SRL strategies (Table 29). However, when the total sample size is less than eight, the Mann-Whitney test will always give a P-value greater than 0.05, no matter how much the groups differ. Nevertheless, none of the P-values was close to 0.05.


SRL strategies	Sig.	Mann- Whitney U	Z	Experimenta l Group Mean Rank	Control Group Mean Rank
Self-evaluation	1.0	6.0	.0	4.00	4.00
Organising and transforming	.629	8.0	.789	4.50	3.33
Goal setting and planning	.629	4.0	789	3.50	4.67
Seeking information	.629	7.5	.592	4.38	3.50
Keeping records and monitoring	.400	8.5	.926	4.62	3.17
Environmental structuring	.400	8.5	.900	4.62	3.17
Self-consequences	.629	4.0	-1.155	3.50	4.67
Rehearsing and memorising	.400	9.0	1.070	4.75	3.00
Seeking social assistance peers	.629	4.0	764	3.50	4.67
Seeking social assistance from teachers	.229	2.0	-1.468	3.00	5.33
Seeking social assistance from adults	.400	3.5	892	3.38	4.83
Reviewing records: notes	.400	3.5	975	3.38	4.83
Reviewing records: tests	.629	4.0	-1.155	3.50	4.67
Reviewing records: textbooks	.629	8.0	.734	4.50	3.33
Other	1.0	6.0	.0	4.00	4.00

# Table 29

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# 4.4.6 Quantitative results

This session presents the student's response to the learning context of SRLIS and their response was recorded and transcribed. Each mentioned strategy was categorised based on the 15 categories of SRL behaviour identified by Zimmerman and Pons (1986) (Appendix E). Table 30 presents the sample of categorised students' responses to the SRLIS.

# Table 30

Samples of Categorised	Students'	Response	to the SRLIS
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SRL Strategies	Students' Response
Self-evaluation	• 'I would recheck my question and make sure I got that right. And chick my answers 1-3 times.'
	• 'I would actually I would just check the answer and look at the question first. And then, I will see if the answer matches the question. And if it makes sense.'
Organizing and transforming	• 'I will also look for the keywords in the book before I write anything.'
Goal setting and planning	• 'I will not do anything else, just focus on homework.'



SRL Strategies	Students' Response
Seeking information	• 'After finishing my work, I will get out of the house. Go for a walk. Go to the church '
Keeping records and	• 'I will actually study about it. Take some notes about it to make sure I
monitoring	remember about the technology.'
-	• 'I will take some notes.'
	• 'I don't know, maybe. Writing it in the handbook.'
	• 'I will look at the chapter, circle down the key words and the important
	part about it, and then write it in a notebook.'
	• 'I will look through the book, finding the important part, and then for the
	less important part. I will put it lower into the paragraphs, so for the
	important part could go first.'
	• 'Teachers ask us to take out our notebook and write the subject down. I will write it carefully'
Environmental structuring	• Sometimes the TV is on, and then I would tell my mother to off the TV.
	I want to do my homework quietly.'
	• 'Basically, I will tell the person who was kind of making me not
	concentrate on my homework, "Can you please keep it a little down", so I
~ 10	can concentrate.'
Self-consequences	• 'After the study, I will like get out of the house, go for a walk or go to
Data and a set	the church.
Renearsing and	• Remembering what I was taught.
memorizing	• 'I will also remember what the characters say. I would say that. I have to
Section social assistance	remember those.
Seeking social assistance	• 'I may ask my friend.'
Sealing appiel aggister ag	• I will ask my brother and sister.
from teachers	• I will ask my teachers. I will ask her to explain to me so that I will not make more mistakes?
from teachers	· 1 will ask my teacher. I don't understand properly. Can you evplain it
	again?'
	• 'If I think the teacher will always explain to me nicely But if I still don't understand, I'll ask my teacher'.
	• 'I guess most of the time. I will check my note, or I will ask my teacher if
	I don't understand properly, can you explain it again?'
Seeking social assistance from adults	• 'I've been asking my like my parents or my teachers or my auntie.'
Reviewing records: notes	• and then if I don't know, I will read the note carefully
C	• I will check the notes.'
Reviewing records: tests	• 'I will read the topic and some pass paper. '
Reviewing records:	• 'I would actually restudy the book that the teacher wants me to write
textbooks	about the passage.'
	• 'First, I would look in the mathematic book.'
	• 'I will check my textbook on the subject. I will see the chapter. I will check which chapter and then go to the chapter in the textbook, and then
	see the steps on now to do the thing.
	<ul> <li>I will go through my textbook and check that.</li> <li>I would actually rectudy the textbook that the teacher works are to switch</li> </ul>
	• I would actually restudy the textbook that the teacher wants me to write, and I will also look for the key words in the book before I write
Other ·	anytning.
outer.	



## 4.4.7 Summary

The results from the Mann-Whitney U indicate no difference in the students' use of SRL strategies between students participating in a SRFC and conventional self-regulated classroom after controlling for students' second language writing skills scores before the intervention. The null hypothesis of RQ4 (H4<sub>0</sub>) should not be rejected.

Although the quantitative results show no significant differences, the qualitative analysis reveals that the students' use of SRL strategies considerably differed between the two groups. The detailed qualitative analysis will be discussed in Section 5.4, and the data collected from the SRLIS will be used to support the discussion.





#### **Chapter 5: Discussion**

The following sections will discuss the findings of the previous chapter with the relevant literature. The current study investigated whether implementing the SRFC approach can enhance students' SRL in an ESL course. The study's objectives were to question whether the SRFC approach can do the following:

- (1) Enhance students' SRL (Section 5.1),
- (2) Foster better feedback practice (Section 5.2),
- (3) Enhance students' second language writing skills (Section 5.2.1) and
- (4) Foster the use of SRL strategies (Section 5.4).

## 5.1 Enhancing Students' Self-Regulated Learning

First, a recap on the importance of SRL, which refers to students actively and constructively engaging in their learning by setting goals, monitoring learning progress, reflecting their learning outcome and regulating and controlling their cognition, motivation, behaviour and learning context to help them achieve learning goals (Pintrich, 2000), is given. SRL is a critical factor for successful learning and academic achievement (Nota et al., 2004; Pintrich, 2003).

The first research question investigated if the SRFC approach can enhance students' SRL. The MSLQ-RCV (Lee et al., 2010) was used as the research instrument to answer this research question. There are six subscales in the MSLQ-RCV: (1) self-efficacy, (2) intrinsic values, (3) extrinsic value, (4) test anxiety, (5) strategy use and (6) peer learning.

The ANCOVA results indicate a significant difference in two subscales of MSLQ-RCV—self-efficacy and test anxiety—between students participating in a SRFC and conventional self-regulated classroom after controlling for their MSLQ-RCV pretest scores.



However, there were no significant differences in the other subscales of MSLQ-RCV between the experimental and control groups.

The following sections will discuss the impact of an SRFC on students' self-efficacy and test anxiety.

## 5.1.1 Self-Regulated Flipped Classroom Has a Positive Effect on Self-Efficacy

Self-efficacy refers to students' beliefs about their ability to learn or perform a specific task (Bandura, 1986). Self-efficacy and self-regulation are considered strong predictors of academic performance (Chemers et al., 2001; Kitsantas & Zimmerman, 2009; Lane et al., 2004).

## Flipped Classroom and Self-Efficacy

More evidence has indicated that the flipped classroom has a positive effect on students' self-efficacy. Ibrahim and Callaway (2014) conducted a within-subject study to investigate the impact of the teaching approach (flipped vs lecture) on preservice teachers' learning outcomes, self-efficacy and perceptions of the teaching approach. The results indicate that students' self-efficacy was significantly improved after participating in the flipped mode compared with the lecture mode. The authors claimed that the flipped classroom's teaching activities encouraged students' cognitive involvement and enabled them to interact efficiently with learning material when compared with the lecture-based teaching activities, subsequently strengthening and promoting their self-efficacy perceptions.

Similarly, the current study's results indicate a significant difference in students' selfefficacy between the flipped and control groups. The adjusted means for the students' selfefficacy scores in the flipped experimental group were significantly higher than the conventional control group. This result may be because quality verbal feedback could



enhance students' self-efficacy, and the flipped classroom could provide more opportunities for quality verbal feedback in the classroom.

## Quality Verbal Feedback Enhances Self-Efficacy

According to Bandura (1977; 2008), verbal persuasion is one of the four ways to develop students' self-efficacy. Verbal feedback such as 'pep talks' and specific performance feedback are examples of verbal persuasion. Verbal persuasion could enhance students' selfefficacy because when students are persuaded to believe they are capable of a task, they are more likely to exert more effort. When students exert more effort, they are more likely to succeed in the task. Verbal persuasion creates a self-fulfilling prophecy on student learning and enhances their self-efficacy.

Verbal persuasion should take into account students' actual ability to succeed. Feedback should also provide attribution on effort rather than fixed abilities. It is essential to provide information on how to enhance future performance. Furthermore, feedback should be sincere because students can see through empty praise (Gaskill & Hoy, 2002). The current study implemented the seven principles of high-quality feedback practice (Nicol & MacFarlane-Dick, 2006) in lesson design (Section 3.4.2). Quality feedback aims to 'clarify what good performance is; facilitate self-assessment; deliver high-quality feedback information; encourage teacher and peer dialogue; encourage positive motivation and selfesteem; provide opportunities to close the gap; use feedback to improve teaching' (Nicol & MacFarlane-Dick, 2006, p. 7).

### Flipped Classroom Provides Opportunity for Quality Feedback

The current study, both the flipped experimental and control groups, implemented Nicol and MacFarlane-Dick's (2006) seven principles of high-quality feedback in the classroom activities. The difference in time arrangement is that approximately 13% more



classroom teaching time in the experimental group was saved for interactive learning activities (Table 7), which provided more opportunities for quality feedback. More time for quality feedback may be a critical factor that could lead the flipped classroom setting to enhancing students' self-efficacy.

Similar to the current study, Thai et al. (2017) investigated the effects of studying in a flipped learning environment, compared with blended learning, traditional learning and elearning settings on learning performance, self-efficacy beliefs, intrinsic motivation and perceived learning flexibility. The results show that learning performance was significantly higher in the flipped classroom setting than in traditional and e-learning settings. In addition, they observed that studying in a flipped classroom setting had a positive effect on self-efficacy. The authors believed that the flipped classroom approach provided the condition for immediate feedback, resulting in higher learning performance. Thai et al. (2020) later investigated whether providing additional online feedback in the flipped classroom context can enhance students' learning outcomes, self-efficacy and feedback appreciation. The result suggests studying in a flipped classroom setting with additional feedback in the online environment results in significantly higher learning outcomes, significantly higher self-efficacy and a higher appreciation of feedback. They also concluded that feedback is essential for enhancing students' self-efficacy in the flipped classroom setting.

Verbal feedback is a crucial way to develop students' self-efficacy (Bandura, 1977; 2008). Knowing how to embed efficacy information in quality feedback seamlessly into routine classroom instructions is vital for self-efficacy development (Gaskill & Hoy, 2002). In the current study, the proposed SRFC approach positively affected students' self-efficacy because it was able to free up more time for interactive learning activities, and more opportunities for teachers to provide feedback and for students to respond to feedback in the classroom, providing more verbal feedback opportunities for self-efficacy development.



### 5.1.2 Self-Regulated Flipped Classroom Reduces Test Anxiety

Test anxiety is situational anxiety associated with the worry of potentially negative consequences or poor performance on an examination (Zeidner, 1998). Test anxiety has two components: the cognitive component refers to the negative thoughts that disrupt the student's performance, and the emotional component refers to anxiety's affective and physiological arousal aspects. The cognitive component and overfocus on performance are the main reasons for performance decrement (Pintrich, Smith, Garcia, & McKeachie, 1991). Students with high test anxiety view examinations as a threat; they anticipate failure and have an intense emotional response when they sense potential failure; they undervalue themselves; and their self-efficacy is low (Zeidner, 1998).

## Flipped Classroom and Test Anxiety

Deliktas and Stojkovska (2019) investigated how the flipped classroom approach affects the first year of high school students on their math achievement and math anxiety level. The results indicate a significant difference in mathematics achievement between the flipped classroom and traditional groups, favouring the flipped classroom group. Moreover, students' math anxiety was significantly reduced in the flipped classroom group but not in the traditional group. Hence, the flipped classroom approach could reduce anxiety because it provides more opportunities for students to practice before the assessment and to have more interactions with the teacher in the classroom (Giuliano & Moser, 2016). The above studies have shown that the flipped classroom helps create a positive atmosphere towards the subject and class.



## Effective Learning Strategies to Reduce Test Anxiety

Teaching students how to use effective learning strategies and test-taking skills could reduce their test anxiety (Pintrich et al., 1991). The current study embedded SRL strategies into the lesson design (Section 3.4.2). For example, in the planning stage, the teacher went through the goal-setting process with students and encouraged teacher-student and student-student dialogue. In the performance phase, the teacher provided high-quality feedback information to students about their learning progress. In the self-reflection phase, the teacher guided students to do self-evaluations to check against their goals. Students can learn what, when and how to apply SRL strategies through this process.

In the current study, approximately 13% more classroom teaching time in the experimental group was dedicated to SRL development (Table 7). Through this learning process, students could be more aware of how they should learn throughout the forethought, performance and self-reflection phases, and by receiving quality feedback from the teacher, students could have higher self-efficacy and reduce their test anxiety. Moreover, the active learning process of the flipped classroom, including watching video activities before the class, may help reduce students' test anxiety.

## Enhance Self-Efficacy to Reduce Test Anxiety

There is a negative relationship between self-efficacy and test anxiety (Nie, Lau, & Liau, 2011; Onyeizugbo, 2010; Pintrich & De Groot, 1990). The higher the self-efficacy level, the lower the test anxiety level will be. This explanation has been supported by Roick and Ringeisen's (2017), who used structural equation modelling to examine the relationship between self-efficacy, expected grade and the relevance of success, test anxiety, and the grade received. They found that higher self-efficacy was associated with a higher expectation



of grades and lower anxiety before and after the exam, along with better performance during the exam.

Providing an opportunity for students to watch prelesson videos may lower their anxiety levels. Noteborn and Garcia (2016) explored the relationship between test anxiety and academic performance in the flipped classroom setting. The results indicate a direct relationship between the number of views of the prelesson videos and students' academic performance. The more the students watched the prelesson videos, the higher their academic performance was. They also found that the more the students watched the prelesson videos, the lower the test anxiety was, subsequently enhanced their academic performance. Allowing students to access prelesson videos may enhance students' self-efficacy and self-control, subsequently reducing their anxiety about the course and exam. The authors also suggested that a flipped classroom approach can reduce in-class time, address students' emotional needs and increase academic effectiveness.

Hsu (2017) studied how the flipped classroom teaching approach could affect college students' English learning anxiety. The findings show that the flipped classroom approach did reduce students' English learning anxiety significantly. Hsu believed that the flipped classroom approach facilitated personalised learning, which can enhance self-efficacy and learning effectiveness because students can learn at their own pace and be prepared before attending the face-to-face lesson. Again, the higher their self-efficacy, the lower their English learning anxiety was found to be.

The current study's results indicate a significant difference in students' test anxiety between the flipped experimental and control groups. The adjusted means for the students' test anxiety scores in the flipped experimental group were significantly lower than those in the control group. The previous section discussed how the students' self-efficacy in the flipped experimental group was significantly higher than the control group. A possible



explanation for this may be related to the positive effect on self-efficacy in the SRFC, along with the higher self-efficacy level and the lower test anxiety level. The experimental group's high self-efficacy may contribute to their test anxiety is significantly lower than that of the control group.

## 5.2 Foster Better Feedback Practice

In the current study, feedback refers to the information provided to the learner regarding their learning progress, performance or outcome. Feedback has powerful influences on students' cognition, metacognition and emotion in learning (Hattie & Timperley, 2007). The current research proposed implementing the seven principles of high-quality feedback practice to enhance students' self-regulation (Nicol & MacFarlane-Dick, 2006)*:* 

- (1) 'Helps clarify what good performance is (goals, criteria, expected standards);
- (2) facilitates the development of self-assessment (reflection) in learning;
- (3) delivers high-quality information to students about their learning;
- (4) encourages teacher and peer dialogue around learning;
- (5) encourages positive motivational beliefs and self-esteem;
- (6) provides opportunities to close the gap between current and desired performance;
- (7) provides information to teachers that can be used to help shape the teaching'. (p.
  - 7)

The second research question investigated if the SRFC approach can foster better feedback practice. The AEQ (Gibbs & Simpson, 2003) was used as the research instrument to answer this question. There are three subscales of the AEQ: (1) quantity and timing of feedback, (2) quality of feedback and (3) use of feedback. The ANCOVA results indicate that students' use of feedback scores in the flipped experimental group was significantly higher than the control group after controlling for their AEQ pretest scores.



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However, there were no significant differences in students' quantity and timing of feedback and quality of feedback scores between the experimental and control groups. This result may be because both groups applied the same SRL approaches and seven principles of high-quality feedback practice in the lesson design. Students in both groups experienced quality feedback and SRL learning strategies in the face-to-face lessons, and the main difference was that the teachers in the control group would have to spend more lesson time teaching the subject knowledge. In contrast, the flipped group teachers could allocate more time for feedback and follow-up activities because some of the lectures were moved outside the classroom through the use of prelesson learning videos. Hence, both groups of students received in-class feedback in similar quantities and timing and in quality of feedback. The main difference would be the opportunity to respond to the received feedback or use of feedback.

## 5.2.1 Self-Regulated Flipped Classroom Fosters Students' Use of Feedback

#### Students' Use of Feedback

The students' use of feedback scores in the AEQ reflects how students perceiving the received feedback can support their subsequent learning, assessment and revision (Gibbs & Simpson, 2003). However, students' perceptions of feedback usefulness do not always align with teachers' expectations.

Maclellan (2001) compared the perception of feedback between 130 students and 80 teachers in a university. The findings reveal a major gap in teachers' and students' perceptions of feedback. For example, most teachers believed that their feedback was frequently helpful in detail; however, up to 73% of the students responded that feedback is sometimes helpful. In addition, most of the teachers believed that feedback frequently helps students understand assessment and improve learning. Contrary, the students reported that



only sometimes feedback from teachers helps them understand assessment and improve learning. The most alarming finding was that 63% of the teachers believed that feedback frequently prompts a discussion, but up to 50% of the students responded that feedback never prompts discussion.

Gibbs et al. (2003) studied students' perceptions of assessments in two universities and formulated a framework for assessments. One study area showed how students respond to feedback and use it to inform subsequent learning; the authors discovered that just 1% of students would consider reading feedback provided by the teacher that would then motivate them to return to the subject and spend more time on it, despite teachers allocating considerable resources to provide written feedback for students.

Feedback is pointless unless it is received and attended to by students, and it needs to be acted upon to improve learning (Gibbs & Simpson, 2005). In the current study's conventional control group, some classroom time was reserved for students to start doing their assignments during the lesson. The teacher could occasionally provide quality feedback. However, because of relatively less teaching time, students almost leave no time to respond to the received feedback. Because of the tight teaching schedule, the student's response to feedback is often in the form of a 'correction'. Sometimes, students copy whatever the 'corrected' answer provided by the teacher is and write it next to the wrong one. This kind of action does not help support learning.

In the flipped experimental group, approximately 13% more classroom teaching time was saved for active learning activities. The teacher could provide instant feedback during those activities, and the students had more time to respond to the received feedback. The feedback and reaction to the feedback process must be iterated a few times before they submit their assignment.



#### Flipped Classroom and Feedback

As mentioned before, feedback is the key to enhance students' learning outcomes, self-efficacy and feedback appreciation, especially in the flipped classroom context (Thai et al., 2020). Elmaleh and Shankararaman (2017) reported the effect of implementing the flipped classroom model on students' feedback levels in an undergraduate course. The authors reported that a flipped classroom allows more practice time in the classroom compared with the traditional classroom. The time allocated for in-class exercises, one-to-one personalised feedback and whole-class feedback were up to three times higher than the traditional classroom. And as mentioned before, In the current study, more classroom time was allocated for in-class exercises, one-on-one and whole-class feedback in the flipped classroom, and the amount of time students spent interacting with feedback was significantly related to the level of improvement in subsequent learning tasks (Zimbardi et al., 2017). This may be why students in the flipped classroom perceived the received feedback as something that can foster their subsequent learning, assessment and revision.

# 5.3 Enhance Students' Second Language Writing Skills

The third research question was asked to investigate if the SRFC approach can enhance students' academic performance, particularly the second language writing skills. Students' scores on the ESL writing test were reported as content, language and total (the sum of content and language). The ANCOVA results indicate that students' language scores in the experimental group were significantly higher than those in the control group.

There was no significant difference in the content scores. A possible reason may be because the ESL writing test was guided writing—for example, the primary four tests were events programmes. Most of the content, such as key words, information and data, was provided for the students. The variation between groups for the content scores may be



relatively low. The total score is the sum of the content and language score, no significant difference in content score also a factor in the no significant difference in the total score.

Because no studies have focused on investigating the connection between the flipped classroom and ESL language specifically, the following section will discuss the impact of the SRFC approach on students' ESL writing skills in general.

## 5.3.1 Self-Regulated Flipped Classroom Enhances ESL Writing Skills

## Flipped Classroom Enhances ESL Writing Skills

Afrilyasanti, Cahyono and Astuti (2016) investigated the flipped classroom model's effect on students' ESL writing ability. The results show a significant difference in students' writing task scores, favouring the flipped experimental group. The authors believed that the results were because the flipped classroom's students could learn from the teaching materials before the face-to-face class. This arrangement allowed for more study time because students had to complete both online learning activities before attending the face-to-face lesson. The students in the flipped class were required to finish more tasks and quizzes than the control group. However, their research design caused a varying amount of work for students between the groups, making comparison difficult. Regardless, their findings suggest that the flipped classroom can positively impact students' ESL writing skills. In the current study, students from both the experimental and control groups received the same amount of learning work.

#### Enhancing Self-Efficacy in the Flipped ESL Learning Context

The current study and some other research have supported that the flipped classroom model positively affects students' self-efficacy (Ibrahim & Callaway, 2014; Lai & Hwang, 2016; Sun et al., 2018). This relationship has also been observed in the learning ESL context. For example, Namaziandost and Çakmak (2020) compared students' self-efficacy between



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those students participating in flipped and traditional ESL courses. The results indicate that students' self-efficacy scores in the flipped group were significantly higher than the control group's scores. The authors claimed that the flipped model encourages students to be responsible for their learning and reflect on the learning process. These processes reinforce students' beliefs in their learning potential. Moreover, classroom teaching time can focus on higher quality learning activities such as discussions, pair work or group work. As a result, students' self-efficacy was enhanced.

Similarly, Su Ping, Verezub, Adi Badiozaman and Chen (2020) conducted a qualitative study on students' experiences of a flipped ESL writing programme. The authors reported that students were motivated and had more confidence to write during the face-toface lesson because they had sufficient preparation before the lesson and because they received immediate feedback during face-to-face lessons. The students also felt engaged when participating in group discussions, sharing ideas and practising writing with peers. The authors reported that students had a higher level of self-efficacy in English at the end of the flipped writing programme.

## Enhancing ESL Performance by Promoting Self-Efficacy

The current study offers empirical evidence to back up the argument that the flipped classroom model can encourage students' self-efficacy and boost their academic performance and ESL writing skills. Self-efficacy is a strong predictor of academic performance (Chemers et al., 2001; Kitsantas & Zimmerman, 2009; Lane et al., 2004); in the present study, the experimental group's high self-efficacy may have contributed to their language scores being significantly higher than the control group's scores.



## 5.4 The Use of Self-Regulated Learning Strategies

The fourth research question investigated if the SRFC approach can foster the use of SRL strategies. The SRLIS (Zimmerman & Pons, 1986) was used to collect students' consistency in using SRL strategies. The results of the Mann-Whitney U test indicate no difference in students' use of SRL strategies between students participating in a SRFC and conventional self-regulated classroom.

Although the quantitative results show no significant differences, the qualitative analysis revealed that students' use of SRL strategies considerably differed between the two groups. The use of keeping records and monitoring and seeking social assistance from teachers strategies between the two groups are worth discussing. The following sections will discuss the observations of the usages of those SRL strategies in both groups.

#### 5.4.1 Keeping Records and Monitoring

Self-monitoring refers to students observing and collecting information on their learning process and action and making a change to pursue an academic goal. Keeping records and monitoring is an essential SRL strategy, such as note-taking and highlighting key words. Self-monitoring is essential to help students focus on a limited number of responses. Self-monitoring also helps students better manage their learning time and fosters reflective thinking (Zimmerman & Paulsen, 1995).

## Quantitative Analysis

In the current study, the mean consistency usage of the keeping records and monitoring strategy in the flipped experimental group was 6.5, which was relatively higher than the control group at 2.7 (Table 28). There was no evidence to support a significant difference between the two groups. This may be because both the experimental and control group students experienced a similar self-regulated learning process and applied similar SRL



strategies during the lessons. In both the experimental and control groups, the teacher supported students in applying SRL strategies in different learning phases. During the performance phase, the teachers guided students to monitor their learning by applying structured self-monitoring strategies (Zimmerman & Paulsen, 1995). In other words, the teachers provided a sentence structure checklist to help students in monitoring their learning progress (Table 4).

## **Qualitative Analysis**

Although there was no quantitative difference between the two groups in terms of strategy consistency, the students in the flipped group elaborated on the process of using the self-monitoring strategy in more detail:

- 'I will look at the chapter, circle down the key words and the important part about it, and then write it in a notebook.'
- 'I will look through the book, finding the important part, and then for the less important part. I will put it lower into the paragraphs, so for the important part could go first.'

In these examples, the experimental group students were actively searching for the important parts and keeping them in a notebook. They took the responsibility of note-taking and actively engaged in the learning process.

On the other hand, the students in the control group also reported using similar selfmonitoring strategies, but their approach seemed relatively passive. In the following instances, the students used the note-taking strategy because they followed the teacher's instruction rather than because of spontaneous action:

- 'Teachers ask us to take out our notebook and write the subject down. I will write it carefully, and then if I don't know, I will read the note carefully.'
- 'I will...listen to the teacher, and I will write down what it is going to be.'



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El-Senousy and Alquda (2017) reported that students' SRL strategies usage significantly increased in the flipped classroom context compared with the traditional one, including the keeping records and monitoring strategy. They suggested that the flipped classroom enabled student-centred learning and self-regulation and encouraged students to take responsibility for their learning. The usage of SRL strategies reflected how students were taking control of their learning.

Similarly, in the current study, students in the flipped experimental group actively used the keeping record and monitoring strategy. When they were watching the prelesson learning videos independently, they were responsible for jotting down the key words and important points and taking notes. Without this training, the students in the control group were more reliant on teachers' guidance and just transferred the learning content from one place to another: the blackboard to the notebook.

## 5.4.2 Seeking Social Assistance

#### Quantitative Analysis

In our study, the mean usage consistency of seeking social assistance from teachers in the flipped experimental group was 1.5, which was relatively lower than the control group at 6.7 (Table 28). However, the learning contexts provided in the SRLIS were more related to the conventional approaches (Appendix D); this may have created a misalignment between students' experiences between the flipped experimental and conventional control groups (Zimmerman & Martinez-Pons, 1990):

'Teachers usually expect students' homework assignments to be completed correctly or accurately, especially in subjects such as mathematics. Many of these assignments must be completed at home without the help of a teacher.



What do you do to make sure you complete your homework correctly? What do you do if you do not understand the work the teacher has assigned?' (p. 53)

The above SRLIS learning context specifically stated that the students would face the learning process alone, which was not what the flipped classroom students experienced. The students in the flipped classroom were asked to complete their assignments with the teacher's help during the lessons. The teachers could provide a more detailed explanation of the assignment when the students were working on it. This may be why the students in the experimental group did not have to seek social assistance from teachers as much as in the control groups.

# **Qualitative Analysis**

Although the quantitative results show no significant differences regarding seeking teachers' assistance, the students in the control group seemed to more often depend on the teachers' support. Teachers' assistance played an important role in the control group. However, this seems to put the burden of the responsibility of information acquisition on the teachers rather than on the students. For example, the students in the control group reported the following:

- 'I will ask my teachers. I will ask her to explain to me so that I will not make more mistakes.'
- 'I will ask my teacher. I don't understand properly. Can you explain it again?'
- 'If I think the teacher will always explain to me nicely... But if I still don't understand, I'll ask my teacher.'
- 'I guess most of the time. I will check my note, or I will ask my teacher if I don't understand properly, can you explain it again?'



This level of dependency on teacher assistance was not reported by the students in the flipped experimental group. Here, students reported that they were relying on textbooks and their notes:

- 'I will check my textbook on the subject. I will see the chapter. I will check which chapter and then go to the chapter in the textbook, and then see the steps on how to do the thing.'
- 'I will go through my textbook and check that.'
- 'I would actually restudy the textbook that the teacher wants me to write, and I will also look for the key words in the book before I write anything.'

## 5.4.3 Summary

Sebesta and Bray Speth (2017) evaluated how SRL strategies were associated with higher achievement and grade improvement on exams. Their results suggest that higherachieving students and those with grade improvements were using specific SRL strategies more consistently than lower-achieving students. The authors reported that keeping records and monitoring and seeking social assistance from teachers were two of the six SRL strategies significantly associated with higher achievements.

In general, seeking social assistance is one of the most important SRL strategies. However, the goal of SRL is to improve students' metacognition, motivation and behaviour in learning without solely relying on teachers and parents (Zimmerman, 1989). The students in the control group seemed to rely more on seeking social assistance, such as from teachers, peers and parents. On the other hand, the students in the flipped experimental group seemed to be able to seek out learning information independently.



## **Chapter 6: Conclusions**

Self-regulation is a significant predictor of students' academic achievement. Selfregulation behaviours also have long-term effects on students' interpersonal behaviours, mental health and healthy living in later life (Nota et al., 2004; Robson et al., 2020). However, not many students are proficient at regulating their learning; this is why teachers should help develop students' self-regulation (Hadwin & Winne, 2001).

There are many ways for teachers to support students in becoming self-regulated learners (Pintrich, 1995; Zimmerman & Paulsen, 1995). Teachers can develop students' selfmonitoring skills and be the SRL models for students. Teachers should also provide opportunities for students to practice SRL strategies in lessons. Finally, developing students' self-efficacy is essential because self-regulation and self-efficacy are interconnected processes that affect students' learning and academic achievement (Gaskill & Hoy, 2002; Schunk & Zimmerman, 2007).

However, there are also many challenges in making students proficient in SRL. Sometimes, the learning goals set by students may not align with the teachers' learning goals. Students may lack self-monitoring skills and use inefficient learning strategies. Moreover, SRL training is insufficient and rarely integrated into classroom teaching, and teacher-centred instruction becomes the dominant approach because of the tight teaching schedule (Zimmerman & Paulsen, 1995). Therefore, it is essential to reallocate teacher-centred instruction and active learning activities to maximise teaching time for SRL development.

The SRFC approach was proposed (Section 2.8), where the primary objective is to free up time for active learning activities and provide more opportunities for teachers to provide quality feedback and for students to respond to the feedback in the classroom by moving teacher-centred instruction out of the classroom using online learning activities (Bishop & Verleger, 2013). In the current study, the seven principles of feedback practice



(Nicol & MacFarlane-Dick, 2006) were implemented in face-to-face lessons to support and develop students' self-regulation to investigate whether implementing the SRFC approach can enhance students' SRL skills in an ESL course.

Both the experimental and control groups used SRL strategies in the lesson design, such as goal-setting, self-monitoring, self-reflection and the seven principles of feedback practice. However, the experimental group also used a flipped classroom technique, which is the key distinction. The control group, on the other hand, used SRL strategies in a conventional classroom environment.

Some of the teacher-centred lectures in the flipped experimental group were replaced by prelesson learning videos. Before attending the face-to-face lessons, the students watched the prelesson learning videos and completed the corresponding worksheet. This arrangement resulted in approximately 13% more classroom teaching time in the experimental group for interactive learning activities, hence providing more opportunities for the teacher to provide quality feedback and students to respond to the received feedback.

In the current study, 86 students participated: 43 students in the experimental group and 43 in the control group. The MSLQ-RCV (Lee et al., 2010) was used to collect students' self-regulated learning data; the AEQ (Gibbs & Simpson, 2003) was used to collect students' perceptions of feedback; an ESL writing test was used to collect students' ESL writing performance; and the SRLIS (Zimmerman & Pons, 1986) was used to collect students' use of SRL strategies data.

## 6.1 Summary of the Findings

The study's main finding is that the SRFC approach has a significant effect on students' SRL by improving self-efficacy, decreasing test anxiety and promoting better



feedback usage. In addition, the SRFC approach may also boost students' academic performance, here being ESL writing skills.

## 6.1.1 Self-Regulated Flipped Classroom Enhances Students' Self-Efficacy

There was a significant difference in students' self-efficacy between attending the SRFC and conventional self-regulated classroom, here favouring the flipped experimental group.

#### Feedback Provided by Teachers

The SRFC approach frees up more time for interactive learning activities in the classroom, providing more opportunities for students to receive verbal feedback. Verbal feedback could enhance students' self-efficacy because when students are persuaded to believe they are capable of a task, they are more likely to exert more effort. When students exert more effort, they are more likely to succeed. Thus, verbal feedback, such as persuasion, creates a self-fulfilling prophecy effect on student learning and enhances their self-efficacy (Bandura, 1977; 2008). Besides this, SRFC also free up time for students to respond to feedback (see Session 6.1.3)

## 6.1.2 Self-Regulated Flipped Classroom Reduces Test Anxiety

Students who attended the SRFC had significantly lower test anxiety than those who participated in the conventional self-regulated classroom.

## **Effective Learning Strategies**

Since effective learning strategies and test-taking skills can reduce students' test anxiety (Pintrich et al., 1991), this study embedded the SRL strategies in the lesson design, and teachers explicitly guide students to learn and apply effective SRL strategies in different learning stages. However, effective learning strategies may not be the only reason to reduce



test anxiety in the experimental group because the same SRL strategies were also embedded in the control group.

## **Better Preparation for Learning**

Besides effective learning strategies, the prelesson learning activities of the SRFC approach also foster students to better prepare for face-to-face lessons. When students were better to prepare for the learning and assessment, their test anxiety reduced (Giuliano & Moser, 2016; Su et al., 2020)

# • Enhance Self-Efficacy to Reduce Test Anxiety

Furthermore, there is a negative relationship between self-efficacy and test anxiety (Nie et al., 2011; Onyeizugbo, 2010; Pintrich & De Groot, 1990). The SRFC approach enhances students' self-efficacy, as a result, lowers their test anxiety levels.

## 6.1.3 Self-Regulated Flipped Classroom Fosters the Students' Use of Feedback

The results indicate that students' use of feedback scores in the flipped experimental group were significantly higher than the control group.

## Students' Respond to Feedback

The SRFC approach is more than just freeing up time for more interaction and receive feedback provided by teachers. It also provides opportunities for students to respond to received feedback to support their learning because feedback is useless if students do not respond to it and address it (Gibbs & Simpson, 2005). Furthermore, students' time spent interacting with feedback is significantly related to improved subsequent learning tasks (Zimbardi et al., 2017). In the current study, because more classroom time could be allocated for in-class exercises, one-to-one and whole-class feedback were more accessible in the SRFC. As a result, the students also had more time to respond to the received feedback,



which is why the students' perceptions of the use of feedback were significantly higher in the flipped classroom.

## 6.1.4 Self-Regulated Flipped Classroom Enhances ESL Writing Skills

The results indicate that students' language scores on the ESL writing scores in the flipped experimental group were significantly higher than the control group.

## Self-Efficacy and Academic Performance

The results of RQ1 indicate that students' self-efficacy in the flipped experimental group was significantly higher than the control group. Because self-efficacy is a strong predictor of academic performance (Chemers et al., 2001; Kitsantas & Zimmerman, 2009; Lane et al., 2004), it is no surprise that the flipped experimental group's language scores on the ESL writing task were also substantially higher than the control group's scores. Thus, the current study provides empirical evidence to support the claim that the SRFC approach can enhance students' ESL writing skills by promoting their self-efficacy.

## 6.1.5 Summary

The results of this study imply that: (1) Feedback provided by teachers enhance students' self-efficacy. (2) Students' response to feedback is as important as receiving feedback provided by teachers. (3) Effective learning strategies, better preparation before the lesson and higher self-efficacy reduce students' test anxiety (4) It is essential to enhance students' self-efficacy since it predicts their academic performance. Therefore, after reviewing the results of the current study, the recommendation as following:



## 6.2 Implications

## 6.2.1 Teachers Should Provide Often, Detail & Quickly Enough Feedback

The first recommendation of this study is for teachers to create conditions for better feedback practices. The result of this study indicated that implementing the seven principles of quality feedback could enhance students' self-efficacy. Feedback is essential in all learning contexts, whether in a flipped classroom or conventional classroom. However, the flipped classroom could free up more time for teachers to provide often enough, detail enough, quickly enough feedback for students. For example, when the students in the flipped classroom are doing their 'homework' during the lesson. They could request immediate assistance from the teacher. Here, the teacher can provide just-in-time feedback to target the learning pain points based on students' learning progress.

#### 6.2.2 **Opportunities for Students to Respond to Feedback**

The second recommendation is that students should have the opportunity to respond to feedback. Responding to feedback is as essential as receiving quality feedback because feedback is pointless unless attended by students (Gibbs & Simpson, 2005).

Usually, in most learning contexts, the teacher could often provide detail enough and quickly enough feedback for students. However, classroom time is rarely enough for students to respond to feedback or respond by doing corrections at most.

The result of this study indicated that the student's perceptions of the use of feedback were significantly higher in the SRFC than in the self-regulated conventional classroom. Because the flipped classroom free up more time for students to respond to the received feedback; hence, they could work on the learning task a few times before submitting the assignment. This study demonstrated that reserving around 13% of classroom time for students to respond to the feedback could make a difference. For example, in a 40 minutes



lesson, spend around 5 minutes for students to edit their work after receiving feedback may impact their use of feedback perception and improving their performance in subsequent learning tasks (Zimbardi et al., 2017)

### 6.2.3 Embed SRL Strategies in Lesson Design

The third recommendation of this study is to embed effective SRL strategies in lesson design regardless it is a flipped classroom or conventional classroom. The quantitative and qualitative analysis of students' responses to the SRLIS also indicated that students in both groups could essentially apply SRL strategies in their learning. This result supports that students can become better SRL learners through the learning experience (Pintrich, 1995; Coppola, 1995).

When SRL strategies were embedded in lesson design, teachers explicitly guide students to apply SRL strategies throughout different learning activities, such as setting goals during the forethought phase, observing and keeping track of their learning progress during the performance phase, and evaluating their learning progress performance during the selfreflection phase. Thus, the teacher becomes the SRL model for students, and the students can apply the SRL skills they have been taught in the classroom.

## Embed SRL Strategies in Flipped Classroom

The flipped classroom opens up the opportunity for more learning strategies to take place. For example, when students watch prelesson videos, they practice learning strategies such as keeping records and monitoring, note-taking and seeking out learning information independently. This arrangement also motivates students to take charge of their learning (El-Senousy & Alquda, 2017). Moreover, the more the students watched the prelesson videos, the higher their academic performance and lower test anxiety (Noteborn & Garcia, 2016). The



results demonstrate the importance of embedding the SRL strategies in lesson design, which is essential for creating a holistic learning experience to develop students' self-regulation.

### Embed SRL Strategies in Blended Learning Context

Before 2019, it was not easy to promote the concept of a flipped classroom. Not many teachers considered those teaching approaches, despite all the potential benefits in learning and teaching. However, COVID-19 caused thousands of school closures worldwide, forcing schools to adopt remote online learning approaches. As a result, the teachers shifted from face-to-face to online teaching approaches in 2019–2020. When students learn remotely without the teachers' in-person support, SRL is more critical than ever. Recommendations for future research should focus on implementing SRL strategies to enhance teachers' and students' learning and teaching experiences, whether face-to-face, online or blended learning environments.

## 6.2.4 Interplay Between SRL, Self-Efficacy, Feedback in Flipped Classroom

The current research contributes to the literature in several ways. First, this study is one of a few studies investigating the connection between SRL, self-efficacy and feedback in the flipped classroom context. This study, alongside Thai et al. (2017) and Thai et al.'s (2020) study, concluded that feedback is essential for enhancing students' self-efficacy in the flipped classroom context.

Second, to the best of my knowledge, this study provides additional insight and empirical evidence that students' opportunities to respond to feedback are as significant as the quality feedback itself. Since the flipped classroom not only free up time for teachers to provide feedback; it also frees up time for students to respond to the feedback.

Last but not least, the result of the SRLIS indicated that even though students' use of SRL strategies may not have quantitative differences, their attitude towards using SRL



strategies may be affected by the teaching approach. For example, the flipped classroom may enable student-centred learning and self-regulation and encouraged students to take responsibility for their learning (El-Senousy & Alquda, 2017). Therefore, more research should be in the future investigating students' attitudes towards using SRLIS strategies.

## Limitations

Although the current study's findings support how implementing the SRFC approach could enhance students' self-efficacy, reduce test anxiety, foster feedback and improve academic performance, the study contained the following limitations.

First, the present study was conducted at a local primary school using convenience sampling. Also, the target school was multicultural, which is not valid for many schools in Hong Kong. Therefore, the results may be less generalisable. Further research should include a wide range of schools and students with different socioeconomic backgrounds, providing a more generalisable understanding of the impact of SRFC.

Second, the COVID-19 outbreak prevented me from interviewing all 16 targeted students. As a result, I could only conduct the SRLIS interview with seven participants. When the total sample size is less than eight, the Mann-Whitney test will always give a Pvalue greater than 0.05, no matter how much the groups differ. Larger sample size could have helped in better understanding how the teaching approach impacts the SRL strategies used.

Third, the research instruments of the AEQ were translated from English to Chinese. As a result, the Chinese version may not convey accurate meaning. However, most students relied on the original English version because of the target school's multicultural background.

Fourth, the duration of the experiment was around 14 lessons. The impact of SRL in the conventional classroom in the control group may take longer to be effective than the experimental group. A longer experimental duration, for example, a whole semester, would



be much preferred. Collecting data from multiple time points could provide a holistic understanding of the impact of the SRFC and SRL in the conventional classroom.

## 6.3 Summary

The current study implemented the SRFC approach to free up time for active learning activities, more opportunities for teachers to provide quality feedback, and students to respond to the feedback in the classroom by moving teacher-centred instruction out of the classroom with the support of online learning activities. In addition, the current study adapted Nicol and MacFarlane-Dick's (2006) seven principles of high-quality feedback practice as a guideline for the teacher to provide feedback to students. The aim is to create a feedback condition in the classroom to support students learning (Gibbs & Simpson, 2005).

The current study aimed to investigate whether implementing the SRFC approach can enhance students' SRL skills in an ESL course. The results show that the SRFC approach positively impacts students' SRL by enhancing students' self-efficacy, reducing their test anxiety and fostering better use of feedback; this approach could also enhance students' academic performance. The findings provide additional insight and empirical evidence that students' opportunities to respond to feedback are as significant as the quality feedback itself. Since the flipped classroom not only free up time for teachers to provide feedback; it also frees up time for students to respond to the feedback.



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## Appendices

Appendix A

#### Motivated Strategies for Learning Questionnaire (MSLQ-RCV)

 姓名 Name:
 \_\_\_\_\_()

 班別 Class:
 日期 Date :

以下的句子描述是您在學習時所抱持的心態及採用的方法,每題的答案沒有對錯之分,您只需選 取一 個最符合您真實情況的答案,若您沒有使用過這些學習方法,您可以按照自己對這些方法的 贊同程度,選取一個最合適的答案,請將你對本課程學習情形以「1」代表「非常不贊同」、 「5」代表「**非常贊同」**,依照自己的看法,圈選你的適當答案。

The following questions ask about your motivation for and attitudes about this class. Remember there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is **very true of you**, circle **5**; if a statement is **not at all true of you**, circle **1**. If the statement is more or less true of you, find the number between 1 and 5 that best describes you.

0000000	1 2 3		4			5				
No	Not at all true of Not true of me Neutral True of me						Very true of me			
-	me 非世不替同	个質问	回 無 思 見	[ 貸	可		非常	吊箕回	J	
1	中的五世世的									
1	找応 - 分 工 示 安	そ昌角挑戦性・找力	犯学智利事物。 	.1.1	1	2	3	4	5	
2	I prefer class v	work that is challengin	ng so I can learn new	things.						
4	我預期比較再	其他同 <u>批同學</u> 我會做的	的更好。		1	2	3	4	5	
	Compared to o	other students in this o	lass I expected to do	well.						
3	在測驗時・利	と。 雪緊張得記不起我 P	听讀過的內容。							
	I am so nervou	us during a test that I	cannot remember fact	s I have	1	2	3	4	5	
	learned.									
4	4 在課堂中所教的、所學習的·對我是很重要的。				- 1	2	3	4	5	
	It is important for me to learn what is being taught in school.				1	2	5		5	
5	5 我很喜歡在課堂中所學習的。				1	2	3	1	5	
	I like what I am learning in school.				-	5				
6	我當然明白課	<b>果堂上所教的一切。</b>			1	2	2	1	5	
	I am certain th	at I can understand th	e ideas taught in my o	classes.	1	2	5	+	5	
7	我想我能夠將	我在一個科目所學的	的用於其他科目上。		1	2	2	4	5	
	I think I will b	e able to use what I le	earn in one subject in	another.			5	4	5	
8	能在課堂中耶	双得好成績是當前最低	能滿足我的事情。							
	Getting a good	d grade in this class is	the most satisfying th	ning for	1	2	3	4	5	
	me right now.									
9	和其他同班同	同學比較・我是一位的	仔學生。		1	2	3	4	5	
4 5 6 7 8 9	在課堂中所著 It is important 我很喜歡在講 I like what I a 我當然明白講 I am certain th 我想我能夠將 I think I will b 能在課堂中即 Getting a good me right now. 和其他同班同	数的、所學習的,對 for me to learn what 業堂中所學習的。 m learning in school. 業堂上所教的一切。 at I can understand th 各我在一個科目所學師 eable to use what I lea 又得好成績是當前最低 d grade in this class is 同學比較,我是一位。	我是很重要的。 is being taught in scho the ideas taught in my of 的用於其他科目上。 arn in one subject in 龍滿足我的事情。 the most satisfying th 好學生。	ool. classes. another. ning for	1 1 1 1 1	2 2 2 2 2 2 2	3 3 3 3 3 3	4 4 4 4 4		



Not	12345Not at all true of me 非常不贊同Not true of me 不贊同Neutral 同無意見True of me 贊同Very true of m 非常贊同						me ]		
	Compared wit	h others in this class,	I think I am a good st	udent.					
10	我經常做得比 Loften do mor	力課的要求更多。 The than is required of r	ne for homework assi	anments	1	2	3	4	5
11	我可以肯定我 I am sure I car homework.	t dual is required of r 在課堂作業和功課。 n do an excellent job o	中做得十分出色。 on the class assignmer	nts and	1	2	3	4	5
12	當我有測驗問 I have an unea	与・我會感到不開心켜 asy, upset feeling whe	和不自在。 n I take a test or exam	1.	1	2	3	4	5
13	在這班裏 · 我 I think I will re	就想我會獲得好成績 eceive good grades in	° my exams.		1	2	3	4	5
14	在測驗中獲得 Even when I d mistakes.	得不好的成績時・我 lo poorly on a test or e	都會從錯誤中學習。 exam I try to learn fro	m my	1	2	3	4	5
15	 我覺得在課堂 I think that wh	如此 如本 I am learning in sc	• hool is useful for me t	to know.	1	2	3	4	5
16						2	3	4	5
17	7     我覺得在課堂中的學習是有趣的。				1	2	3	4	5
18	<ul> <li>I think that what we are learning in school is interesting.</li> <li>         當我溫習時,我常常會嘗試向一位同學或朋友解釋所溫習的內容。         When studying for this course, I often try to explain the material to         a classmate or a friend     </li> </ul>					2	3	4	5
19	7 我知道我能夠學懂教材的內容以應付測驗和考試。 I know that I will be able to learn the materials for the tests and avame					2	3	4	5
20	我會為到測驗 I worry a grea	愈感到很憂慮。 t deal about tests and	exams.		1	2	3	4	5
21	明白課堂裏所 Understanding	「教的對我是很重要的 g the subject is import	内。 ant to me.		1	2	3	4	5
22	當我在測驗時 When I take a	与·我會想到我做得行 test I think about how	很差。 v poorly I am doing.		1	2	3	4	5
23	When I take a test I think about now poorly I am doing.       Image: Comparison of the poorly I am doing.            當我為測驗而溫習時,我會嘗試將課堂和書本的資料整理結         合。           1         2         3         4         When I study for a test, I try to put together the information from						5		
24	當我做功課時 準確回答問題 When I do hor class so I can a	西 · 以便 : said in	1	2	3	4	5		



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Not	1 t at all true of me 阜常 <b>不</b> 贊同	2 Not true of me <b>不</b> 贊同	3 Neutral 同無意見	4 True c 贊[	4 5 rue of me Very true 贊同 非常贊			5 rue of 常贊同	of me ] 同	
25	我會自我發問 I ask myself q been studying.	]來測驗我的學習成學 uestions to make sure	₹。 I know the material I	have	1	2	3	4	5	
26	在閱讀時,尋 It is not difficu study.	討我課文的重點,對語 Ilt for me to decide w	我來說是並不困難。 hat the main ideas are	when I	1	2	3	4	5	
27	當功課或習作 的部分來做。 Although worl	=是艱辛時・我不會対 k is hard. I neither giv	選擇放棄或只是選擇 re up nor study the eas	一些較易 sv part.	1	2	3	4	5	
28	在學習時 · 我 When I study	t會用自己的文字寫 I put important ideas i	出課文的重點。 into my own words.	, <b>,</b>	1	2	3	4	5	
29	我經常嘗試去 理。 I always try to doesn't make:	新的白老師所說的,約 understand what the sense.	從使它們聽起來好像 teacher is saying even	不合情 n if it	1	2	3	4	5	
30	當我為測驗而 When I study:	〕溫習時,我會嘗試讀 for a test I try to reme	記憶所有的資料。 mber as many facts as	sIcan	1	2	3	4	5	
31	現在對我最重要的是提高成績的總平均分,所以我最關心能否 獲得好的成績。 The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade				1	2	3	4	5	
32	我會嘗試與同 I try to work w course assignr	]班同學一起完成功讀 vith other students fro nents.	果。 m this class to comple	ete the	1	2	3	4	5	
33	Course assignments.          我會繼續工作直至完成、就算學習的材料是很沉悶。          Even when study materials are dull and uninteresting, I keep          working until I finish					2	3	4	5	
34	當我為到測驗 When I study : and over to my	敵而溫習時・我會重祥 for a test I practise say yself.	复又重複將資料用口 ying the important fac	說出。 ts over	1	2	3	4	5	
35	在開始學習限 Before I begin learn.	F.我會先想一想我幫 studying I think abou	需要學什麼。 ut the things I will nee	ed to do to	1	2	3	4	5	
36	我會利用我做 課。 I use what I ha textbook to do	過去的功課和習作 ave learned from old h new assignments.	中所學到的來幫助我 nomework assignment	做新的功 s and the	1	2	3	4	5	
37	我知道自己所 The materials	f學的是什麼。 I use for studying are	not difficult to unders	stand for	1	2	3	4	5	
38	me. 當我溫習時,	常常會抽空跟一些「	司學討論。		1	2	3	4	5	



1     2     3     4       Not at all true of me     Not true of me     Neutral     True of me       me     不贊同     同無意見     贊同				of me 司		Very t 非?	5 rue of 掌贊同	me	
3	非常不贊同							-	
	When studying for this course, I often set aside time to discuss the								
20	course materia	al with a group of stud	lents from the class.			-			
39	富我學習一個 	副課題時・我會整理	有關資料・使它們能	配合課					
	題。				1	2	3	4	5
	When I am stu	udying a topic, I try to	make everything fit t	ogether.					
40	當我閱讀一段	と時間後・我會停下?	來回想我所讀的。						
	When I am stu read.	adying I stop once in a	a while and go over w	hat I have	1	2	3	4	5
41	當我閱讀一些	e資料時・我會重複】	又重複讀出每一字來	幫助我記					
	憶。				1	2	3	4	5
	When I read m	naterials for my classe	es, I say the words ove	er and	1	2		-	5
	over to myself	f to help me remember	r.	romen Nascoscomenti.					
42	我會寫出每課	<b>果的大綱來幫助我學</b> 都			1	2	3	4	5
	I outline the cl	hapters in my book to	help me study.		-	-			5
43	<sup>3</sup> 就算我不喜歡一個科目·我仍會努力爭取好成績。								
	I work hard to get a good grade even when I do not like that subject					2	3	4	5
44	▲								
	When I am studying I try to connect the things I am reading about with what I already know.				1	2	3	4	5
45	如果可以的詞		部分同班同學有更好	的成績。					
	If I can, I wan	t to get better grades i	n this class than most	of the	1	2	3	4	5
	other students.								
46	在課堂討論中	□ · 我會和其他同學-	一起合作完成學習任	務。	57.57		7275		101
	I try to work w assignments.	vith other students fro	m this class to comple	ete the	1	2	3	4	5
47	我想在課堂裏	取得良好的成績・ 「	因為可以向我的家人	、朋友或					
	   其他人展示我	的能力是很重要的	o		1	2	2	1	5
	I want to do w	ell in this class becau	se it is important to sh	now mv	1	2		-	5
	ability to my f	amily, friends or othe	rs.	,					
48	溫習時遇到不	「懂的地方・我常常	會請教其他同學。		1	2	3	4	5
	I consult other	students when I have	e problems in review.		1	4			5
49	在專題探究中	□·我常常會和其他[	司學一起完成任務。						
	I often work w	with other students to a	complete the tasks in j	project	1	2	3	4	5
50	learning.								
50	測驗中如果題 I usually ask c	過到不懂的地方・我な lassmates for help wh	會請教其他同學。 nen I meet difficulties	in a quiz.	1	2	3	4	5





Appendix B

#### **Assessment Experience Questionnaire (AEQ)**

姓名 Name ( ) 班別 Class: \_\_\_\_\_

日期 Date :

填寫答案說明:

本量表的目的在於了解您在本課程中得到回饋的經驗.請將你對本課程學習情形以 「1」代表「非常不同意」、「5」代表「非常同意」·依照自己的看法·圈選你的適 當答案。

The following questions ask about your perception of feedback experience in this class. Remember there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions. If you Strongly Agree that statement, circle 5; if you Strongly Disagree, circle 1. If the statement is more or less true of you, find the number between 1 and 5 that best describes you.

	1	2	3	4	5					
	非常不同	不同意	中立	同意	非常同意	Ē				
	意	Disagree	Neutral	Agree	Strongly	7				
	Strongly Disagree				Agree	-		-		
1	在這個課程中・我得	寻到很多回饋	0			1	2	3	4	5
	On this course I get p	lenty of feedb	oack on how I	I am doing.						
2	我很快就會收到回饋	<b>貴</b> 。				1	2	3	4	5
_	The feedback comes	back very qui	ckly.			Ĺ		_		
3	我幾乎沒有收到任何關於我功課上的回饋。						2	3	4	5
	There is hardly any feedback on my assignments.							5		Ĵ
	當我功課上有不明的	∃或做作業出	錯時・沒有	人告訴我如何	何改善。					
4	When I get things wrong or misunderstand them, I don't receive much $\begin{vmatrix} 1 \\ 2 \end{vmatrix} = 3 \begin{vmatrix} 4 \\ 4 \end{vmatrix}$ guidance in what to do about it.							3 4	5	
5	如果我收到多些回顧	貴·我的學習	應該會更好	٥		1	2	2	4	5
5	I would learn more if	I receive mor	e feedback.				2	2	4	5
6	我太遲收到回饋 · 团	国此變得沒有	什麼作用。			1	2	3	4	5
	Whatever feedback I	get comes too	late to be us	eful.		1	2	5		5
	我收到的回饋只是將	将我的作業和	比他人的作	業作比較。						
7	The feedback mainly others.	tells me how	well I am do	ing in relatio	n to	1	2	3	4	5



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	1	2	3	4	5					
	非常不同	不同意	中立	同意	非常同意	Ţ				
	音	Disagree	Neutral	Agree	Strongly	7				
	Strongly Disagree				Agree					
8	回饋能幫助我了解學	習內容。				1	2	3	4	5
0	The feedback helps m	e to understa	nd things bet	ter.		1	2	5	4	5
0	回饋能告訴我下次如	1何做得更好	•			1	2	3	1	5
9	The feedback shows 1	ne how to do	better next ti	me.		1	2	5	+	5
10	我收到回饋後·我就	<sup>我</sup> 理解為什麼	我得到了這	樣的分數		1	2	2	4	5
10	Once I have got the fe	edback, I und	derstand why	I got the ma	ırk I did.	1	2	С	4	5
11	我一點也不明白我收	(到的回饋。				1	2	۰ د	4	5
	I don't understand son	ne of the feed	iback.			1	2	2	4	5
12	我很少從回饋中知違	贫需要做些	什麼才能改	進。		1	2	ں ا	4	4
12	I can seldom see from	the feedback	what I need	to do to imp	prove.	1	2	2	4	5
	我會仔細思考收到的	回饋・並試	著了解它的	意思。						
13	I think about the feed feedback is saying	back carefully	y and try to u	nderstand w	hat the	1	2	3	4	5
	我會利用收到的回饋	尿口顧我做	過的功課。							
14	Luse the feedback to	o back over	what I have o	lone in the		1	2	3	4	5
	assignment.	50 back over	what I have e	ione in the						
15	我收到的回饋對我之	Z後的功課沒	有幫助。			1	2	2	4	5
15	The feedback does no	t help me wit	h any subseq	uent assignr	nents.	1	2	3	4	3
		S驅使我溫習	之前所學的	 內容。						
16	The feedback prompt	s me to go ba	ck over mate	rial covered	earlier in	1	2	3	4	5
	the course.									
17	我不會利用收到的回	]饋來幫助我	做改正。			1	2	3	4	5
	I do not use the feedb	ack for revisi	ng.			<u> </u>				5
18	我只會關心我的分數	χ				1	2	3	4	5
	I tend to only care abo	out the marks						5		5

完

The end



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# Appendix C

Content	Language	Total
/ 3	/ 3	/ 6

Score Level	Content	Language
3	<ul> <li>The ideas/responses to the questions are relevant; some supporting details are given.</li> <li>The ideas are clear and coherent.</li> </ul>	<ul> <li>Uses a small range of vocabulary, sentence patterns and cohesive devices appropriately, with minor*, few or no grammatical and spelling mistakes</li> <li>* errors that do not affect comprehension</li> </ul>
2	<ul> <li>The ideas/responses to the questions are brief* and relevant to the questions.</li> <li>The ideas are quite clear. * almost no supporting details</li> </ul>	<ul> <li>Uses a limited range* of vocabulary, sentence patterns and/or cohesive devices fairly appropriately, with some grammatical and spelling mistakes OR</li> <li>Uses a very limited range* of vocabulary, sentence patterns and/or cohesive devices, with few or no grammatical and spelling mistakes</li> <li>* responds to the questions with basic and appropriate vocabulary and sentence patterns</li> </ul>
1	<ul> <li>The ideas/responses to the questions are very limited.</li> <li>OR</li> <li>The ideas/responses are unclear or disconnected, which may confuse the reader.</li> <li>OR</li> <li>Some ideas/responses to the questions are irrelevant</li> </ul>	• Uses a very limited range of vocabulary and sentence patterns, with many grammatical and spelling mistakes
0	<ul> <li>The ideas are totally irrelevant/incomprehensible.</li> <li>OR</li> <li>The ideas are just a repetition of the prompts.</li> </ul>	• The language is incomprehensible.



## Appendix D

#### Self-Regulated Learning Interview Schedule (SRLIS) 調查學生學習方法訪問問卷

- Imagine your teacher is discussing with your class the influence of twentieth century developments in technology on the lives of people today. Your teacher says that you will be tested on the topic the next day. What strategies would you use to help you remember the information being discussed? What do you do if you are having trouble understanding or remembering the information discussed in class? 假設你的老師正如你們討論 20 世紀科技發展對今天人類生活的影響,老師說你們明 天將會測驗有關課題;如你對此課堂內容所討論的內容有理解及記憶的困難,你會 怎樣做呢?
- 2. Imagine your teacher asks students in your class to write a short essay on a novel you have read this year in class. Your mark for this essay will affect your final semester grade. In such cases, what strategies do you use to help you plan and write your essay? What do you do if you are having difficulty with the topic? 假設你的老師要求你們寫一篇你們今年內閱讀的一本小說的報告, 而報告就從的分數會影響你的大考分數。在這情況下, 你將會采用什麼方法去協助你計劃和寫你的報告?如果你對這問題對這問題上發生困難時,你將會如何處理?
- 3. Teachers usually expect students' homework assignments to be completed correctly or accurately, especially in subjects such as mathematics. Many of these assignments must be completed at home without the help of a teacher. What do you do to make sure you complete your homework correctly? What do you do if you do not understand the work the teacher has assigned?

一般老師,特別是某些科目例如數學,均要求學生的家課準確地及正確地完成;而大部份的家課均需於在家中完成,而沒有老師的協助。你會用什麼方法去確實你能準確地完成你的家課呢?如你不明白老師所指定的家課內容,你會怎樣做呢?

4. Most teachers give a test at the end of a topic or unit of work, and the test result usually contributes significantly to your final mark for that subject. What strategies do you use for preparing for these tests? What do you do if you are preparing for an especially difficult test?

很多老師均喜歡於教完一課或數課後給同學一個測驗,而測驗的結果往往對該科的 總成績有若干的影響。你會用什麼方法去準備這些測驗呢?對於一些特別困難的測 驗,你會怎樣去準備呢?



- 5. Many times students have difficulty completing homework assignments because there are other more interesting things they would rather do such as watching TV or going out with friends. What strategies do you use for motivating yourself to complete your homework under these circumstances? What do you do if you are trying to meet a pressing deadline? 很多時同學會發現於做家課時出現困難,因為你們有其他更有趣味性的事情要做例 如喜愛的電視節目或朋友有約,在這些情況下,你會用什麼方法去提起自己的興趣 去完成你的家課呢?如交家課的日期已很接近,你會怎樣做?
- 6. Some students find it easier if they can arrange the place where they study. What do you do to create a good environment for studying? What do you do if you are having difficulty concentrating on your school work?
  部份同學如能安排他們溫習的地方,他們發覺會較容易溫習。你會怎樣去製造一個良好的溫習環境呢?如果你發覺有困難去集中精神溫習學校的功課時,你會怎樣做呢?
- 7. When completing homework assignments (e.g., science reports, English or foreign language exercises, etc.), what strategies do you use for checking your work after it's completed? What do you do if it is a particularly difficult assignment? 當同學做家課時, (例如科學計劃,英文習作等),當你完成家課時,你會用什 麼方法去覆核你的家課呢?如果係家課特別困難時,你會怎樣做呢?
- 8. When taking tests at school (e.g., in a foreign language, English, science, history, math, etc.), what strategies do you use for making sure that your answers are correct before handing in the paper? What do you do if there is a particularly difficult test question? 當同學在學校測驗時,例如英文,歷史,數學等,在交卷前你會用什麼方法肯定你 所寫的答案是正確的呢?對於一些說特別困難的測驗題目,你會怎樣做呢?



## Appendix E

JC	(LAS coung categories (Zinnierman & Fons, 1986, p. 618)
Strategy	Descriptions and examples
1. Self-evaluation	Statements indicating student-initiated evaluations of the quality of completed work,
	understanding of an area of work, or effort in relation to task demands, e.g.,
	"I check over my work to make sure I did it right."
	"I ask my mother to test me to see if I know it."
2. Organizing and	Statements indicating student-initiated overt or covert rearrangement of instructional
transforming	materials to improve learning. e.g.,
	"I make an outline before I write a paper."
	"I use a highlighter to mark the important sections in the book."
	"I summarize the important points in the chapter."
3. Goal setting	Statements indicating student setting of educational goals or subgoals and planning for
and planning	sequencing, timing, and completing of activities related to those goals, e.g.,
	"I commence revision a number of weeks before the test."
	"I leave the difficult questions until last and then come back to them."
4. Seeking	Statements indicating student-initiated efforts to secure further task information from
information	nonsocial sources when undertaking an assignment, e.g.,
	"I borrow books from the library about that particular topic."
	"I read as widely as I can on the subject."
5. Keeping	Statements indicating student-initiated efforts to record events or results, e.g.,
records and	"Later, I write notes of the class discussion."
monitoring	"I pick out the unknown words and make cards."
6. Environmental	Statements indicating student-initiated efforts to organize the learning context to make
structuring	learning easier. This may involve arrangement of either the physical or psychological
	environment, e.g.,
	"I make my desk clean and tidy and put all the books that I need nearby."
	"I have a shower before starting my homework."
7. Self-	Statements indicating student arrangement or imagination of rewards or punishment for
consequences	success or failure,e.g.,
	"I give myself rewards during study breaks, such as watching a certain amount of TV."
	"I think about failing, and that makes me want to work."
8. Rehearsing and	Statements indicating student-initiated efforts to memorize material by overt or covert
memorizing	practice,e.g.,
28/8	"I write out all the important points many times so that I can remember them."
	"I do many of the same sorts of examples so that I will remember how to do a similar
	one in the test."
9-11. Seeking	Statements indicating student-initiated efforts to solicit help from peers (9), teachers
social assistance	(10), and adults (11).e.g.,
	"I discuss the assignment with my friend on the way home in the train."
	"If I am having trouble understanding, I will arrange to see the teacher after school."
	"I ask my father to explain how to do it."
12-14. Reviewing	Statements indicating student-initiated efforts to reread notes (12), tests (13), or
records	textbooks or access the online materials prepared by the teachers (14).e.g.,
	"I go over all my notes on the topic."
	"I go through all the assignments and tests that I have previously done."
	"I try and reread the textbook several times."
15. Other	Statements indicating learning behavior that is initiated by other persons such as
	teachers or parents, willpower statements, expressions of cheating, and all unclear verbal
	responses, e.g.,
	"I try and do what I think the teacher wants me to-I just do my best."
	"I forget about time and just force myself to do what has to be done."



