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University of Algiers 2 Aboukacem-Saadallah

Faculty of Foreign Languages

Department of English



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**Investigating the Effect of Self-assessment on
Academic Writing: A Case of First-year
Students at the English Department, University
of Algiers 2**

دراسة أثر استخدام نماذج التقييم الذاتي في تطوير مهارات التعبير الكتابي الأكاديمي
لطلاب السنة الأولى إنجليزية لغة أجنبية بالجزائر

Candidate:

Ms Kenza Takarroucht

Supervisor:

Prof. Faiza Bensemmane

Board of Examiners

Chair: Dr Yasmine Boukhedimi, University of Algiers 2

Supervisor: Prof. Faiza Bensemmane, University of Algiers 2

Examiner (external): Dr Mohamed Chaabane-Ali, University of Blida 2

Examiner (external): Dr Wafia Tihal, Teacher Training School (ENS-Bouzareah)

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Dedication

To my mother

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Abstract

The aim of this study is to investigate the effect of student self-assessment on academic writing. The study was set in an EFL university context with first-year English degree students at the University of Algiers 2, and attempted to examine three variables: writing strategies, writing ability, and writing apprehension. The experimental intervention consisted of implementing self-assessment of writing strategies and self-assessment of paragraph writing. To conduct this research, an embedded mixed-methods design was implemented with a sample of 30 control and 30 experimental groups. This involved a pre and post scale of writing strategies, a pre and post writing test, and a pre and post writing apprehension inventory to collect quantitative data. To collect qualitative data, interviews on writing strategies and on writing attitudes were conducted with fifteen participants after the experiment. Data were analysed using descriptive statistics and independent-samples t-test at $\alpha=0.05$. Descriptive statistics revealed that the mean score of the experimental group was higher than that of the control group on the three variables. Analysis of the data indicated statistically significant difference between the control and the experimental groups on the three variables. Analysis of interview data indicated that the majority of the participants used writing strategies such as planning, monitoring, and evaluating strategies; they also voiced positive attitudes towards paragraph writing and high perceptions of their paragraph writing ability. Nevertheless, limitations in the use of writing strategies were found. Based on these findings, it can be concluded that self-assessment is a tool, which can enhance students' knowledge of criteria of good work and improve their use of writing strategies and their writing ability. Self-assessment can therefore nullify their writing apprehension by building self-efficacy for writing and positive attitudes. The study thus suggests recommendations for study skills teachers to include self-assessment in their curricula.

Key Words: Self-assessment; Academic Writing; Metacognition; Self-regulation; Writing Strategies; Writing Ability; Writing Apprehension; EFL in Algerian Higher Education

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List of Abbreviations

- **CLA:** Communicative Language Ability
- **CLT:** Communicative Language Testing
- **EFL:** English as a Foreign Language
- **ICT's:** Information and Communication Technologies
- **L1:** First language
- **L2:** Second Language
- **LMD:** Licence- Master-Doctorat
- **SRL:** Self-regulated Learning
- **SSA:** Student Self-assessment

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List of Symbols

- α : alpha
- **Df**: Degrees of Freedom
- **M**: Mean
- **N**: Number of First-year Students (the population)
- **n**: Number of Participants (the sample)
- **SD**: Standard Deviation
- **SE**: Standard Error
- **Sig.**: Significance Level
- **Std.**: Standard
- *t*: t-value
- <: Less than
- =: Equal

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General Introduction

- **Context and Motivation of the Study**

Self-assessment has been researched in this study because we believe that it is central to the learning process of EFL students. It is a learning strategy, which involves students in gauging their language learning progress and achievement (Oxford, 2017). It is claimed that self-assessment is effective, since it helps students to be strategic and reflective (Panadero et al., 2019). Self-assessment is a strategy, which needs to be acquired by students at university. Moreover, it is necessary in the age of ICT's and for 21st century education. This study was motivated by the need to study the contribution of self-assessment to the development of academic writing ability, which is considered crucial for university studies and for the improvement of English language skills. Although self-assessment has been much studied, more research is needed to investigate the implementation of self-assessment in relation to academic writing.

Self-assessment research is a rapidly growing area in EFL education. In the last few years, much research has been carried out around the world. This interest in implementing self-assessment in EFL classes was sparked by theoretical foundations, which highlight the role of self-assessment in developing writing skills. In Algeria, the implementation of the LMD system and the rise of learner-centred curricula have begun to give an impetus to further development in foreign language self-assessment research.

Different studies have been conducted to research self-assessment in EFL contexts (e.g. Fahimi & Rahimi, 2015; Heidarian, 2016; Mazloomi & Khabiri, 2016; Elgadel, 2017; Comert & Kutlu, 2018; Fathi & Khodabakhsh, 2020; Fathi, Afzali, & Parsa, 2021). While these studies investigated the effect of self-assessment on the use of writing strategies, writing ability, and writing apprehension, there is a need to expand research in self-assessment so as to emphasise context. Motivated by such body of empirical research, this study was

conducted to obtain data to investigate how self-assessment can affect Algerian first-year EFL students' academic writing in terms of writing strategies, writing ability, and writing apprehension.

- **Statement of the Problem**

As a tool for learning, self-assessment seems to lack development in first year classes. Despite the 2005 LMD reform of higher education, which put the student at the centre of learning, the Algerian educational system is still feeding partly from the transmission approach to education (Miliani, 2012). This approach is characterised by the use of testing procedures which separate learning and assessment, and tend to measure reproduction of acquired knowledge in terms of a total score only (Wolf, Bixby, Glenn, & Gardner, 1991). Thus, the teacher holds responsibility for the measurement of students' performance while the latter are rather passive in the evaluation process. This responsibility evokes a sense of security to teachers, students and even parents (Dam, 2003), but at the same time, it diminishes students' reflection and problem-solving capacities.

Institutional factors such as time constraints, large classes, and administrative factors related to the unreliability of student self-assessment and issues of accreditation are often evoked to explain why self-assessment is almost absent in the evaluation system at university. If teachers' assessment through written feedback provides students with tactics needed to reproduce and apply prescribed rules, it is mainly prescriptive and tends to fall short of equipping them with reflective strategies and problem-solving skills they need to be able to progress autonomously (Snowman, 1986; in Biggs, 1988).

- **Objectives of the Study**

This study focuses on students' self-assessment in relation to academic writing. Its aim is to examine the extent to which self-assessment can foster writing strategy development, improve students' writing ability, and decrease their writing apprehension. It is believed that self-assessment can help students capitalise on their writing goals, and equip them with effective writing strategies to regulate their writing processes.

With the rise of Information and Communication Technologies ICTs, learning necessitates the adoption of new assessment approaches that move beyond assessment of knowledge reproduction and which promote problem-solving skills and authentic learning (Dochy & McDowell, 1997). This has consequences on the nature of the knowledge the student acquires. This knowledge is self-constructed through metacognitive processes that can be activated using self-assessment (ibid.).

Writing ability is the focus of attention in this research, because in academic settings, writing ability is a prerequisite for success. When accounting for the various demands of academic learning contexts, developing writing ability remains a challenge that both students and teachers face. Besides, writing in a foreign language bears additional challenges. Starting from language competence, which remains fundamental, other components of writing such as writing strategies are needed by university students. Affective factors such as writing apprehension can also directly influence students' academic writing experiences and choices and even their academic career (Daly, 1978). Therefore, the need to find innovative learning tools that can help students develop their writing skills seems crucial.

This study centres round first-year Study Skills course, which aims at helping students write coherent paragraphs. The course develops basic academic writing skills, which are needed to master essay writing in the second-year degree course, but there is little focus on self-assessment. Therefore, it is thought important to find a learning tool that can help first year students monitor the writing process and assess the writing product. This tool is self-assessment and its use can enhance students' writing strategies, writing ability, and reduce their writing apprehension. Three research questions have been formulated to investigate the research problem.

Research Question 1: What is the effect of self-assessment on students' use of writing strategies?

- a. Does self-assessment help participants develop their writing strategies?

- b. What are the strategies that participants use to write paragraphs?

Research Question 2: What is the effect of self-assessment on students' writing ability?

- a. Does self-assessment help participants develop their writing ability?

Research Question 3: What is the effect of self-assessment on students' writing apprehension?

- a. Does self-assessment help participants decrease their writing apprehension?
- b. What are participants' attitudes towards paragraph writing in English?

- **Significance of the Study**

Self-assessment is a lifelong learning strategy that needs to be acquired by university students because it can help them monitor their learning without referring to their teachers constantly, and thus they can develop autonomous learning skills. Through self-assessment, students can develop writing strategies, improve their writing ability, and reduce their writing apprehension.

A number of studies have been conducted in Algeria, which implemented self-assessment in EFL writing classes. For instance, Kadri (2019) investigated the effect of self-assessment on essay writing proficiency, writing strategies, and self-efficacy for writing. The study was conducted with third-year English degree students. Similarly, Hachemi (2013) investigated the impact of self-assessment on paragraph writing proficiency measured in terms of content, organization, cohesion, vocabulary, grammar, punctuation, and spelling. On the other hand, Moussaoui (2012) implemented peer-assessment, and investigated its impact on the development of writing performance, writing self-efficacy, and writing apprehension.

The present study is significant insofar as it deals with not only writing ability and strategies, but also with writing apprehension, which is an aspect little investigated. The findings of this study will be beneficial to first-year university students considering that writing skill is of paramount importance. The results may also be significant to teachers who need to find ways for engaging their students in the self-evaluation process to increase their autonomy.

- **Definition of Key Constructs**

Self-assessment

It refers to “a process of formative assessment during which students reflect on the quality of their work, judge the degree to which it reflects explicitly stated goals or criteria, and revise their work accordingly” (Andrade, 2010, p. 91). It is not a self-grading process, but it “is done on drafts of work in progress in order to inform revision and improvement” (ibid., p. 92).

Academic Writing

It encompasses all types of writing performed in a university context (Murray & Moore, 2006). In language learning, it involves paragraph and essay writing (Zemach & Rumisek, 2003).

Writing Ability

It refers to the ability to create texts using language knowledge, topical knowledge and strategic competence. Knowledge of language has two components: organisational and pragmatic knowledge. Organisational knowledge refers to knowledge of organising sentences into a text using grammatical and textual components. Pragmatic knowledge is knowledge of how sentences and texts are related to the context of language use by means of functional and socio-linguistic components. Topical knowledge refers to knowledge schemata available in long-term memory. On the other hand, strategic knowledge includes ability to execute goal setting, assessment, and planning. It involves the use of a set of “higher order executive processes” which help writers operate cognitive processes necessary to execute writing. Cognitive processes manage language knowledge that is available in long-term memory (Bachman & Palmer, 1996, p. 70).

Writing Strategies

They are “actions or behaviours consciously carried out by writers in order to make their writing more efficient” (Petrić & Czár, 2003, p. 189). They are techniques, which writers use to regulate their writing performance. They are grouped into metacognitive (i.e. planning, monitoring, and evaluating) and cognitive (e.g. reading, re-reading, note taking, editing...etc.) strategies.

Writing Apprehension

It is used to describe “an individual difference characterised by a general avoidance of writing and situations perceived by the individual to potentially require some amount of writing accompanied by the potential evaluation of that writing” (Daly, 1979, p. 37).

Metacognition

As a component of self-regulation, metacognition is a psycholinguistic process, which controls the use and maintenance of cognitive strategies. It encompasses two components: metacognitive knowledge (i.e. declarative, procedural, and conditional knowledge) and metacognitive strategies; namely, planning, monitoring, and evaluating (Hartman, 2001).

Self-regulation of Writing

Self-regulation is a process, which controls the execution of metacognition. It also involves behaviour and motivation control. In writing, it involves applying metacognitive strategies and regulating affects during the writing process in order to improve the quality of writing performance and attain communicative goals in writing (Zimmerman & Moylan, 2009).

Attitudes

They are “an evaluative reaction to some referent or attitude object, inferred on the basis of the individual’s beliefs or opinion about the referent” (Gardner, 1985; in Getie, 2020, p. 5).

- **Structure of the Thesis**

This thesis includes two theoretical chapters that cover the literature review, and three chapters that deal with the empirical study.

Chapter 1 deals with the literature on self-assessment. It defines self-assessment and covers its underlying concepts. The chapter reviews theories on metacognition and presents sections that deal with the relationship between metacognition and writing strategies, writing ability, and writing apprehension. It also draws on research studies to discuss the effect of self-assessment on the three variables.

Chapter 2 covers the main components of EFL writing. It starts with a description of the construct writing ability. It analyses and discusses different perspectives on EFL writing, including composition theories, models of writing ability, and assessment. The chapter also centres on affective factors that are related to writing performance.

Chapter 3 is devoted to the research design and procedure. It describes the research paradigm employed, the research design, and the research procedure. It gives an account of the tools, the data collection procedure, the participants, and the methods of data analysis. Finally, it sets the limitations of the study.

Chapter 4 is entitled ‘Data analysis and presentation of results’. It describes the steps followed to analyse the data, and it presents the results.

In chapter 5, the findings are interpreted and discussed in relation to theoretical frameworks. Finally, some implications are drawn from the findings and suggestions are provided for further research.

Chapter 1: Self-assessment & Metacognitive Processes

Introduction

The first chapter aims at describing and analysing the construct ‘self-assessment’ and the underlying metacognitive processes. It is organised in three sections. Section 1 covers the definitions of self-assessment. Referring to previous studies on self-assessment conducted in EFL contexts, this section also expands the definition of self-assessment.

Section 2 analyses the conceptual framework of self-assessment. It starts with a description of ‘assessment’ and ‘testing’ in order to locate self-assessment within the assessment field. Moreover, the section analyses self-assessment in relation to formative assessment, authentic assessment, and self-regulated learning. It also provides a classification of the main defining features of self-assessment. A discussion of the nature of self-assessment as a learning strategy is also covered. In this section, a review of self-assessment as a self-regulation process provided milestones to understand the metacognitive structure of self-assessment, and thus to relate it to different components of self-regulated learning within a socio-cognitive perspective. In addition, tools for self-assessment, self-assessment typologies and procedures are discussed to provide a rationale for the implementation of self-assessment.

Section 3 reviews theories on metacognition, and analyses metacognitive processes involved in self-assessment. In addition, the relationship between metacognition and writing strategies, writing ability, and writing apprehension is discussed in three separate sub-sections by integrating research findings from different EFL contexts. In this vein, relating self-assessment processes to metacognition, its impact on the development of metacognitive processes in writing is referred to. Moreover, building on socio-cognitive theories, the effect of self-assessment as a self-regulation process on writing apprehension is highlighted.

1.1 Definitions of Self-assessment

As a tool for student involvement in the assessment process, self-assessment involves different mechanisms such as self-monitoring, self-report, self-evaluation, self-rating, self-estimation, and self-appraisal. Additionally, these components are referred to in various definitions of self-assessment that will be dealt with in the following paragraphs. In order to make a clear distinction between these terms, Oscarson (2009) described them as follows:

Self-monitoring: it is reflecting on one's performance when it is taking place not afterwards. It is a process of noticing performance and examining the techniques used in order to improve it.

Self-report: it is describing performance or ability without reflecting on it.

Self-evaluation: it is grading one's performance with accreditation.

Self-rating: it is comparing and classifying one's performance against norms.

Self-estimation: it is measuring one's performance against levels from excellent to poor.

Self-appraisal: it is an evaluation of one's effectiveness in doing a given task.

In the literature, the definitions of self-assessment has evolved over time: from product-oriented views to definitions that centre round its formative aspects. To start with, according to Falchikov & Boud (1989), self-assessment is synonymous with self-evaluation. This means that it was seen as a self-grading process, which is based on the use of criteria for assigning marks. In this regard, Oscarson (1989) highlighted the product-oriented nature of self-assessment and defined it as "a process whereby someone determines the nature, characteristics, quality, or level of his or her own ability or learning, either individually or in interaction with someone else" (ibid., p. 3).

Nevertheless, with the rise of the assessment for learning paradigm, definitions of self-assessment have changed focusing more on the process-oriented

nature of self-assessment. Aspects such as feedback were considered as an integral element of self-assessment. In this vein, Boud & Brew (1995; in Panadero, et al., 2015), made a clear distinction between self-assessment and assessment methods such as self-testing and self-rating. In this regard, self-assessment is “concerned with the making of judgments about specific aspects of achievement” (Boud & Brew, 1995, p. 2; in Panadero, et al., 2015). On the other hand, self-rating is students’ involvement in using scales to rate their work (ibid.), while self-testing is a process of involving students in “checking their performance against provided test items” (Boud & Brew, 1995; in Panadero, et al., 2015, p. 3).

Similarly, Boud (1995, p. 5) defined self-assessment as an “engagement of learners with criteria of good work and making judgements about the extent to which they have met these criteria and standards”. In this vein, self-assessment involves reflection on the qualities of good work and making judgements about one’s own work based on knowledge of criteria and standards. Therefore, it is a process with two related sub-processes. The first sub-process is the identification of criteria of good work, which entails consideration of the characteristics and parameters of good work. The second sub-process is making judgements. It involves scrutinising one’s own work in light of pre-established standards, and making decisions concerning the conformity of the work to the standards.

On the other hand, O’Malley and Valdez-Pierce (1996, p. 240) defined self-assessment as an “appraisal by a student of his or her own work or learning processes”. Appraisal of performance can give students an estimation of the quality of their work. Gardner (1999) used self-assessment to refer to doing authentic learning activities such as reading texts or doing tasks for self-study purposes. These types of activities are self-administered to elucidate information about the stage of understanding, amount of acquired knowledge, and the learning approach pursued. In this case, self-assessment is similar to a learning approach, whereby students utilise different methods and materials, which can develop their learning skills.

According to Dochy, Segers, & Suijsmans (1999), self-assessment has two dimensions. First, it is product-oriented since it is a type of reflecting on the final product, and its correspondence to the goals of learning. It is also process-oriented, since it can be a type of re-evaluation of the strategies adopted and the techniques used. The process-oriented dimension also directs students' ability towards recognising what they have done so far, and what they can do to improve their work based on their understanding of criteria of quality work.

According to Falchikov (2005), self-assessment is informed by peer-assessment in that students can develop an appraisal of their ability based on the assessment given by others, generally peers who can provide feedback that can be used to improve the quality of self-assessment.

Roberts (2006, p. 3) defines self-assessment as “the process of having the learners critically reflect upon, record the progress of, and perhaps suggest grades for their own learning”. This definition implies that self-assessment is not confined to self-monitoring, but can encompass aspects such as self-grading or self-testing.

Andrade & Du (2007) described self-assessment relying on the pedagogical procedures it follows. Accordingly, it was viewed as a process of sharing standards of quality work with students and involving them in applying these standards to assess their own work in order to improve it according to the feedback they generate.

This has probably led to revise the definition as “a process of formative assessment during which students reflect on the quality of their work, judge the degree to which it reflects explicitly stated goals or criteria, and revise accordingly” (Andrade, 2010, p. 92). This definition centres on the regulatory aspects of self-assessment, which can be steered through goal setting and monitoring.

Fastré et al. (2012; in Andrade, 2010) referred to the same processes highlighted by Andrade & Du (2007). In this vein, they viewed self-assessment as

a process of identifying criteria of good work to be used for judging the quality of performance and highlighting gaps.

Brown & Harris (2013) defined self-assessment as a “descriptive and evaluative act carried out by the student concerning his or her own work or academic abilities.” (p. 368). This definition implies that self-assessment is both a self-monitoring and a self-evaluation process, because it encompasses reflection on performance and general ability and can involve accreditation.

Unlike the previous definitions which focused on feedback, Panadero et al. (2016) referred to self-assessment as a “wide variety of mechanisms and techniques through which students describe (i.e., assess) and possibly assign merit or worth (i.e., evaluate) the qualities of their own learning processes and products” (p. 804).

Correspondingly, Panadero, et al. (2019, p. 148) defined self-assessment as “learners’ engagement with a process or product of their own learning to describe their perceived progress or result...the outcome of self-assessment can be purely summative (e.g. grading) to mostly formative e.g. creating qualitative information that can be applied for a resubmission of the work”

Similar to Andrade (2010), Andrade (2019, p. 2) referred to self-assessment as a process of feedback used to “inform adjustments to processes and products that deepen learning and enhance performance”. Its purpose is to “generate feedback that promotes learning and improvements in performance”. It should include and lead to correction and adjustments of performance or products to obtain formative feedback (ibid.). Recently, the use of self-assessment has been found to be affected by feedback provision, subject matter, year level, and gender (Panadero et al., 2020).

To expand the conceptualisation of self-assessment in relation to EFL contexts, a number of research studies (e.g. Fahimi & Rahimi, 2015; Heidarian, 2016; Mazloomi & Khabiri, 2016; Elgadal, 2017; Komert & Kutlu, 2018; Fathi &

Khodabakhsh, 2020; Fathi, Afzali, & Parsa, 2021) were analysed in order to gain an overview of definitions of self-assessment.

First, Fahimi & Rahimi (2015) defined self-assessment as “ability to identify strengths and weaknesses and points of improvement in one’s own performance... it is any method or incorporation of any activity that causes writers think about, evaluate, and revise their writing” (p. 73). This definition linked self-assessment to reflection and monitoring performance.

Second, Heidarian (2016) relied on the definition proposed by Richards and Schmith (2002, p. 575; in Heidarian, 2016) to describe self-assessment as a process of “checking one’s own performance on a language learning task after it has been completed or checking one’s own success in using a language”. This definition focused on evaluation of performance and assessment of the final product and ignored the process-oriented nature of self-assessment; i.e., in-progress monitoring of performance.

Third, Mazloomi & Khabiri (2016, p. 1) introduced self-assessment as “a task for scaffolding since it can identify the gap between the learners’ knowledge and that of their teachers’ criteria for their writing assessment. It can also help them develop their own criteria for success in their classes”. This definition centres on the application of criteria for self-assessment. It is more elaborate than the other definitions (i.e., Fahimi & Rahimi, 2015; Heidarian, 2016), because it identified the scaffolding role of self-assessment.

In line with this, the definition referred to self-assessment as a competency, which helps students to close the gap between their current capacity and the desired goal. It shed light on one of the important elements for developing self-regulated students, which is the capacity to internalise self-evaluative standards that results from the application of criteria to reflect on performance.

Based on Bickers’ (1988; in Elgadal, 2017, p. 6), self-assessment was defined as “a process in which a student engages in a systematic review of performance, whether oral or written, usually for the purpose of improving future performance.

It may involve comparison with standards or established criteria, or it may be a simple description of the performance”. This definition provided an overview of the key features of self-assessment such as ongoing monitoring and the use of criteria, and it highlighted the purpose of self-assessment, which is to improve performance or products.

Fourth, Comert & Kutlu (2018, p. 108) focused on the ‘autonomy’ dimension of self-assessment. They defined self-assessment in terms of Boud’s conceptualisation (1995) as “students’ being actively involved in their learning process by getting involved in the process of building the criteria to be used in the evaluation of their products, or by determining whether their products meet these criteria after they have been thoroughly informed about them”.

This definition unpacked key characteristics of self-assessment such as developing sustainable criteria to be used to evaluate the final product. It also highlighted the importance of training students in using self-assessment. However, the definition limits reference to monitoring and reflection on performance.

Fifth, Fathi & Khodabakhsh, (2020, p. 88) referred to self-assessment as “a process in which learners assess their own product or performance against a set of standards”. They referred to self-assessment as a self-directed activity, which assists students in making judgments, setting goals, monitoring, and planning.

Finally, Fathi, Afzali, & Parsa relied on Bailey’s definition and saw self-assessment as “procedures by which learners themselves evaluate their language skills and knowledge” (Bailey, 1998, p. 227; in Fathi, Afzali, & Parsa, 2021). They also related self-assessment to self-regulated learning and to learners’ ability for continuous monitoring and reflection.

Without exception, the research studies called for a clearer conceptualisation of self-assessment, which is involving the students in assessing their own writing using criteria. The common features were students’ involvement, the use of standards or criteria, and reflection on the final product.

What is missing from each of these definitions, however, is an explicit focus on the formative nature of self-assessment, which is supposed to be related to making revisions and modifying in-progress performance not only modification of the final product. A definition of self-assessment requires us to mention its formative function. According to Andrade (2019), self-assessment is feedback, which is needed to improve the quality of performance and the final product.

This view implies that self-assessment involves techniques through which students can improve their performance and the quality of the final product. The feedback that results from self-assessment helps students regulate their own performance, because it involves them in processing and exercising metacognitive monitoring and control (Panadero et al., 2016). Moreover, the feedback generated from self-assessment can enhance students' self-efficacy (ibid.).

Andrade (2019) expanded a set of taxonomies relying on Panadero et al. (2016) to identify the elements of self-assessment. The taxonomy includes the what (competence, process, or product), the why (formative or summative), and the how (methods or the use of standards). In light of this taxonomy, the above-mentioned definitions are analysed.

Definition	What /process, product, competence or	Why/summative or formative	How/ methods; i.e. use of standards
Fahimi & Rahimi (2015)	Process	Formative	Not identified
Heidarian (2016)	Product	Formative	Not identified
Mazloomi & Khabiri (2016)	Process	Formative	Criteria /goals
Elgadal (2017)	Process	Formative	Criteria
Comert & Kutlu (2018)	Product	Formative	Criteria

Fathi & Khodabakhsh, (2020)	Process	Formative	Criteria and goals
Fathi, Afzali, & Parsa (2021)	Process	Formative	Criteria

Table 1: Analysis of the Definitions on Self-assessment Based on Andrade’s Taxonomy (2019)

Following the taxonomy, one can note that standards were not specified (e.g. Fahimi & Rahimi, 2015; Heidarian, 2016). Interestingly, the other definitions referred to student self-assessment as a process of making judgments relying on criteria or goals (e.g. Elgadal, 2017; Comert & Kutlu, 2018). In this regard, Boud (1995) stressed the importance of specifying criteria in a definition of self-assessment. Andrade (2010) referred to *articulating expectations* as a first step towards self-assessment.

Some definitions centred on a product-based use of self-assessment (e.g. Heidarian, 2016; Comert & Kutlu, 2018). This diminishes the formative aspects of self-assessment. Accordingly, Andrade (2010) maintained that a product-based definition merely refers to self-grading; while assessment of general competence is self-reflection. Self-assessment, on the other hand, is about self-monitoring performance and generating feedback, which can be used for ongoing improvement.

According to Brown (2003), self-assessment can be implemented through a variety of tools, including, questionnaires, rating scales, checklists, journals, diaries, logs, rubrics...etc. Referring to the above-mentioned studies, the tools used to implement self-assessment are analysed relying on Andrade’s (2019) taxonomy:

Study	Operationalisation Of the Construct	What /process, product, or competence	Why/summative or formative	How/ methods; i.e. use of standards
Fahimi & Rahimi (2015)	<ul style="list-style-type: none"> • ESL Composition Profile 	Product	Assigning Scores	Criteria
Heidarian (2016)	<ul style="list-style-type: none"> • Self-reporting Questionnaire SRQ • Analytic Scoring Rubric 	Process and product	Checking attainment of criteria and assigning scores	Criteria
Mazloomi & Khabiri (2016)	<ul style="list-style-type: none"> • Criteria-based Checklist • ESL Composition Profile 	Product	Answering questions and scoring.	Criteria
Elgadal (2017)	<ul style="list-style-type: none"> • Criteria-based Checklist with 0–2 score range. 	Product	Checking attainment of criteria and assigning scores.	Criteria and norms
Comert & Kutlu (2018)	<ul style="list-style-type: none"> • Scoring Rubric 	Product	Assigning grades	Criteria
Fathi & Khodabakhsh (2020)	<ul style="list-style-type: none"> • Scoring rubric 	Process	Monitoring	criteria
Fathi, Afzali, & Parsa (2021)	<ul style="list-style-type: none"> • Analytic scoring rubric 	Process	Reflection and monitoring	criteria

Table 2: Analysis of Self-assessment Tools Based on Andrade’s Taxonomy (2019)

Table 2 demonstrates that the implementation of self-assessment can take different forms depending on its purpose; i.e., using rubrics or checklists. Nevertheless, one common point is the use of standards, which define the skill being assessed. Using standards is the basic way to gather information on the

quality of performance, and they assist in proceeding systematically in the self-assessment process which involves additional steps such as the following:

- a) Articulating expectations: it refers to identifying, explaining, and/or devising criteria of quality work involving the students,
- b) Critique of work in terms of expectations: it is about applying criteria to self-monitor and self-observe performance,
- c) Revising: it refers to utilising feedback from self-monitoring for revision.

In order to reach optimum results with self-assessment, Andrade (2010) suggested the additional steps:

- a) Familiarising the students with the role that self-assessment plays in improving their learning,
- b) Devising criteria on which to base self-assessment,
- c) Giving students opportunities to reflect on their work,
- d) Encouraging students to use feedback gained through self-assessment to improve performance or the quality of the final product.

In the following section, we will examine a set of techniques that help us sort out other parameters necessary to successful implementation of self-assessment. These techniques emerge from Panadero et al.'s (2015) analysis of different typologies. The first typology is "Knowledge Interest Typology". It suggests that self-assessment has different purposes according to the types of "knowledge interest" that students have in relation to using it (Boud & Brew, 1995; in Panadero et al., 2015). Accordingly, self-assessment serves the following purposes:

- (a) Identification of students' level of competence and learning needs,
- (b) Communication of assessment standards,
- (c) Involvement of students in applying assessment criteria.

The second typology is 'Student/teacher Involvement Typology', which helps us to identify formats of SSA as the following (Tan, 2001; in Panadero et al., 2015):

- (a) Self-awareness: self-assessment is awareness of one's thinking processes,
- (b) Self-appraisal: self-assessment is a process of revising work taking into consideration anticipated criteria,

- (c) Self-determined assessment: specification of assessment information and feedback,
- (d) Self-assessment practice: awarding grades,
- (e) Self-assessment task: assessment of a specific task,
- (f) Self-grading/self-testing: summative assessment at a surface level.

Third, the ‘Power and Transparency’ typology (Taras, 2010; in Panadero et al., 2015) frames self-assessment into the following formats:

- (a) self-marking: the use of “a model answer(s) with criteria (and possibly mark sheets) to compare to their own work” (Taras, 2010, p. 202; in Panadero et al., 2015),
- (b) Sound standard SSA: the use of work exemplars to assess work and assign a grade.
- (c) Standard model: use of criteria to assess work,
- (d) Self-assessment with integrated tutor and peer feedback: this is a type of activities that precede the use of self-assessment,
- (e) Learning contract design: self-assessment is implemented whereby students take all the necessary decisions.

In addition to the above-mentioned typologies, Alonso-Tapia & Panadero (2010; in Panadero et al., 2015) & Panadero et al. (2013a; in Panadero et al., 2015) proposed the ‘Presence & Form of Assessment Criteria’ typology, which suggested three formats of SSA:

- (a) Standards self-assessment: it is also called self-grading, and it does not involve application of criteria,
- (b) Use of rubrics: in which students give an estimation of their work based on criteria, which describe the quality of the final product from poor to excellent, and
- (c) Use of scripts: it includes question-based criteria, which students are required to answer to assess their work,

The last typology is the ‘Self-assessment Procedure’ typology, identified by Brown & Harris (2013). It classified SSA as (a) self-ratings, (b) self-estimates of performance, and (c) criteria-or rubric-based assessments. Based on these

typologies, the implementation of self-assessment needs to proceed in ways that preserve the following parameters:

- a) Devising standards or allowing students to identify criteria,
- b) Involving students in using criteria,
- c) Allowing students to make judgments and take decision regarding the quality of their work in light of the pre-established standards.

In addition to the techniques essential to the implementation of self-assessment, the typologies put forward different characteristics of self-assessment, which could be summarized in the following categories:

- (a) self-assessment as a process of making judgements,
- (b) self-assessment as a form of dialogue,
- (c) self-assessment as an awareness of standards and criteria,
- (d) self-assessment as a schemata-built process,
- (e) self-assessment as a reflection process,
- (f) self-assessment as a problem-solving process,
- (g) self-assessment as a self-monitoring process, and
- (h) self-assessment as a mediation tool.

(a) Self-assessment as a Process of Making Judgements

Self-assessment involves making judgement (Boud, 1995). In this regard, it is characterised by students' ability for "appraisal" of performance (O'Malley and Valdez-Pierce, 1999). Appraising one's own work is related to identifying gaps and evaluating achievement (Boud and Falchilov, 2007). Judgement is about remediating on past performance, rethinking what is strategic to fix performance, activity, or a learning situation in terms of immediate or latent solutions, and providing the rationale for the solutions taken (Boud, 1995).

(b) Self-assessment as a form of dialogue

Self-assessment is also defined as a form of dialogue (Yancey, 1998). It is a mediation tool, which involves reflection processes (Esteve et al., 2012). Mediation refers to the role 'the more knowledgeable other' plays in assisting

students to progress from what they can actually do by themselves to the next stage which represents what they are able to do with the assistance of an expert (Vygotsky, 1978; in Esteve et al., 2012).

The ‘mediating’ function of self-assessment consists of teacher-learner dialogue, which is evident in the role the teacher plays in familiarising students with standards of good work, and in providing beneficial feedback on the quality of students’ self-assessment. This form of dialogue fosters ‘inner-dialogue’ (Arumi, 2006; in Esteve et al., 2012). This represents self-questioning processes related to activated metacognitive processes. Inner-dialogue also involves development of an “internal picture” of an effective performance (Bartels, 1998).

(c) Self-assessment as an Awareness of Standards and Criteria

Standards or criteria describe the characteristics of effective performance (Bartels, 1998). Knowledge and application of criteria are the main features of conducting self-assessment (Boud, 1995). The ability to appraise performance necessarily depends on knowledge and appropriate application of criteria. Awareness of standards or criteria helps students develop the parameters of effective performance, and it fosters their ability to make informed judgements, which feeds personalised feedback. Therefore, awareness of standards of good work is the tool to an elaborate diagnosis of performance.

(d) Self-assessment as a Schemata-built Process

Self-assessment is also framed into a set of three schemata namely, self-knowledge, task knowledge, and judgement (Yancey, 1998). Firstly, self-knowledge is metacognitive knowledge of self that involves awareness and recognition of personal strengths and weaknesses. It helps students to select appropriate strategies that suit their learning style. This suggests that self-assessment can build students’ self-understanding (Boud, 1995). Task knowledge is knowledge of task requirements, strategies and techniques essential for conducting the task. It familiarises students with task demands, and helps them to understand the criteria used to assess a task. Finally, the schema ‘judgement’ refers to the ability to establish that the work is in conformity with to pre-established

criteria. Making judgements depends on task knowledge and careful consideration of the characteristics of effective performance.

(e) Self-assessment as a Reflection Process

Reflection or reflective thinking is “a process of creating and clarifying the meaning of experience (present or past) in terms of self (self in relation to self and self in relation to the world). The outcome of the process is changed conceptual perspective” (Boyd & Fales, 1983, p. 101). Reflective thinking depends on analysing the experience, and formulating a set of hypotheses on the nature of the experience that can help a student clarify his or her understanding of the experience (Dewey, 1933; in Boud, Keogh, & Walker, 1985).

Hypotheses can be generated from one’s own previous experiences, and can be used to find coherence between present and past experiences in order to promote understanding of the situation and forming a new perspective of it (ibid.). Reflection is also based on ‘self’ as a source of learning experiences (Boyd & Fales, 1983), because it provides background knowledge that can be used to develop metacognitive knowledge of self.

Self-assessment draws on reflection due to its nature as a set of internalised expectations and standards of quality performance. It can involve students in analytic thinking on the quality of their work and the ways to improve it. Similarly, self-assessment provides milestones in reflection, because reflection occurs when students analyse and evaluate personal experiences. Consequently, they can be involved in metacognitive experiences that build their metacognitive knowledge. Self-assessment is a metacognitive process that makes students reflect continuously on the process and product of learning.

The reflective dimension is articulated in terms of awareness of criteria that stimulates recognition of problems in a task that assists the identification of one’s strengths and weaknesses and the manner to deploy them to task requirements. Therefore, self-assessment involves both analytical (i.e. description of performance) and evaluative (i.e. description of the quality of performance) forms of reflection.

Moreover, reflection can increase students' awareness of the features of quality performance, and allows for transfer of skills and competencies from one learning situation to another. Reflection starts with an awareness of the state of performance, then it proceeds to a state of understanding the situation and recognising strengths and weaknesses. When students work on criteria to assess their work, they configure problems encountered in a task and try to solve them. As a result, they can develop "self-awareness"; i.e., they know more about their learning in general and their learning strategies. Ultimately, they gain feedback on their performance through reflection that aids in future learning situations (Roberts, 2006).

(f) Self-assessment as a Problem-solving Process

Self-assessment is a metacognitive process that also involves problem-solving (Birenbaum, 1996). Problem solving was defined as a process of identifying and solving problems in order to reach intended goals (Heine, 2010). Self-assessment can promote problem-solving skills that call for making inferences and activating background knowledge from students' previous experiences to develop performance of a task. In this vein, self-assessment can strengthen the link between different learning experiences. The link that students make between different learning experiences is a type of creating problem-schemas that facilitate problem solving; i.e. students form a set of rules through self-assessment and apply these rules when they face a new learning situation.

Developing capacities to use self-assessment is a process of entering different phases of problem solving. When self-assessment is based on analysing performance with reference to a set of criteria, reflective thinking can occur, and it can lead to creating different problem solving processes. Realising a problem situation or unsatisfactory beginnings in a task, creating a mental representation of a problem, developing an intended goal state, dividing a problem into a set of goals, and searching different problem spaces in order to locate discrepancies that need to be adjusted can be activated throughout self-assessment in order to reach the intended goal.

(g) Self-assessment as a Self-monitoring Process

As a self-monitoring process, self-assessment trains students in processing self-observation and problem solving skills (Zimmerman, 1989). Students trained in self-assessment can configure the demands of a task, plan techniques to conduct it, and monitor their progress in achieving goals. They are also able to use appropriate strategies for the task and adjust them when and where necessary. This implies that they are able to self-regulate during task performance. When students use self-assessment, they undergo metacognitive experiences that result from reflection on the task and performance as well. These learning experiences can help them develop their metacognitive knowledge that encompasses knowledge of their abilities, knowledge of the task, and knowledge of the strategies needed to conduct the task.

The development of self-monitoring skills throughout self-assessment is envisaged in students' ability to discriminate target performance and related strategies. Moreover, self-assessment improves students' ability to notice different aspects of their performance, because it involves reflection on cognitive processes. Therefore, students who are trained in self-assessment can continuously self-monitor their performance by directly diagnosing their cognitive processes or strategies; i.e., reflecting, analysing, and comparing their cognitive processes and finally evaluating their efficiency for goal achievement.

Thus, as a self-monitoring process, self-assessment helps students to observe themselves as they perform a task. It also help to evaluate information about different problem spaces that might exist and to evaluate their actions and their cognitive processes that directly affect their performance and outcomes. As a result, students make their efforts to self-observe performance, and they become able to self-direct their performance, to set and modify goals, and to evaluate cognitive processes.

(h) Self-assessment as a Mediation Tool

Self-assessment can act as a mediating tool for learning that fosters self-regulation. Vygotsky's theory of mediated learning provides a perspective on the role of self-assessment as a mediation tool (Esteve et al., 2012). Vygotsky referred

to mediation as a process that can lead to self-regulation (Oxford, 2019). Mediation occurs through assistance in a socio-cultural context, with the help of a more knowledgeable other, which reminds us of the dialogue form of self-assessment. However, it can also occur independently (ibid.). Thus, Self-assessment can enhance mediation through reflection processes as students interact with the criteria presented to monitor their performance,

As such, self-assessment engenders ‘appropriation’. The latter is a process of actively internalising essential features of a learning experience, which can occur through inner speech relevant to self-regulation (Moll, 2014; in Oxford, 2019). Mediation can also occur through metacognitive processes such as planning, monitoring, and evaluation (Oxford, 2019) which self-assessment can provide. Self-assessment can be a tool for scaffolding, because it helps students to move from their current level of development to a more advanced level that they can reach after monitoring their work or performance against standards.

1.2 Conceptual Framework of Self-assessment

It appears then that self-assessment is a tool for formative and authentic assessment, which involves students in a process of making judgements through reflection on their work, using a set of metacognitive processes. It is a process of diagnosing performance by using criteria and standards that define the characteristics of good work, and ultimately it allows for generating self-constructed feedback.

Self-assessment as a criteria-based monitoring process belongs to the field of formative assessment. In the literature, self-assessment is also referred to as a self-grading process, but it remains a tool for assessment for learning. Nevertheless, the above-mentioned features of self-assessment indicate that it is an alternative or non-traditional form of assessment. A brief pause on the characteristics of alternatives forms of assessment will highlight this aspect. According to Garcia & Pearson (1994, p. 355; in Huerta-Macias, 2002), alternative assessment consists of “efforts that do not adhere to the traditional criteria of

standardization, efficiency, cost-effectiveness, objectivity, and machine scorability”

Moreover, according to Huerta-Macias (2002, p. 339), alternative assessment techniques evaluate students “on what they integrate and produce rather than on what they are able to recall and reproduce”. Accordingly, the goal of non-traditional forms of assessment is to “gather evidence about how students are approaching, processing, and completing ‘real-life’ tasks in a particular domain” (Garcia & Pearson, 1994, p. 357; in Huerta-Macias, 2002).

Alternative forms of assessment are authentic forms of assessment, because they provide information on students’ performance and their strengths and weaknesses on real-life tasks (Huerta-Macias, 2002). In this behalf, authenticity refers to “the degree of correspondence of the characteristics of a given language test task to the features of a target language task” (Brown, 2003, p. 28). Furthermore, they can reach an acceptable level of validity because they measure what they are expected to measure. Against this background, validity refers to “the extent to which inferences made from assessment results are appropriate, meaningful, and useful in terms of the purpose of the assessment” (Gronlund, 1998, p. 226; in Brown, 2003).

Trends that characterise the field of testing and assessment led to a further distinction between traditional and non-traditional or alternative forms of assessment. This distinction draws our attention to different theories and practices that reflected definitions of language proficiency. In this vein, definitions of language knowledge and language proficiency provided a framework for the conception and development of different assessment techniques (Shohamy et al., 2017). For instance, discrete-point testing focused on the objective measurement of isolated lexical and structural items. In the integrative era, discourse components were tested using tasks such as cloze tests and dictation. For these testing practices, principles such as reliability and practicality of tests were given paramount importance.

A different perspective characterises the communicative and performance-based era, which centred round principles such as validity and authenticity. For instance, in the communicative era, attention to strategic competence was highlighted. Thus, students were assessed on interactive tasks such as filling the gaps. On the other hand, in performance-based testing era, “students are assessed as they are performing actual or simulated real-world tasks” (Brown, 2003, p. 11). For instance, tasks such as oral productions, written productions, and group performance are among the tasks used (Brown & Abeywickrama, 2018).

The shift from structural to performance-based testing techniques was developmental, but it was still limited in terms of addressing the effect of tests on students’ learning. The limitation is evident in the focus of these testing techniques on two components; i.e., the trait and the method. To explain this point further, the field of language testing relied on two components: the ‘what’ and the ‘how’. The ‘what’ or trait refers to the construct that is to be assessed. It is about language items that are used to create oral or written language tests. The ‘how’ refers to the method used for assessing the construct. It is about theories, research, techniques, and practices that inform the conceptualisation and measurement of the trait (Shohamy et al., 2017).

In response to this limitation, assessment of language knowledge required integration of traits and methods and an emphasis on the effect of assessment techniques on societal aspects of learning (Shohamy et al., 2017). Thus, this has led to a shift of emphasis towards washback as another assessment principle. To that end, contemporary assessment theory stressed the need to link traits to methods and considered how assessment practices could interact with societal factors (Shohamy, et al., 2017). Consequently, alternative assessment was advanced, and it focused on practices such as providing individualised feedback, opting for criterion-referenced scores, and implementing untimed tasks (Brown & Abeywickrama, 2018).

To that end, principles such as washback and consequential validity were more important for devising assessment tools, because they inform the tester on

the direct impact of the test on the the test-taker. Consequential validity “encompasses all the consequences of a test, including such considerations as its accuracy in measuring intended criteria, its impact on the preparation of test-takers, its effect on the learner, and the (intended and unintended) social consequences of a test’s interpretation and use” (Brown, 2003, p. 27). Washback is a facet of consequential validity that refers to “the effects the tests have on instruction in terms of how students prepare for the test” (Brown 2003, p. 28).

This discussion brings about different terms used in the literature such as assessment and testing. First, testing is a subset of assessment. It is a process of using techniques “to elicit a performance (usually within a predetermined time frame) for the purpose of making judgements about a person’s knowledge, skills, or abilities” (Green, 2014, p. 6). Douglas (2010) views testing as the act of assigning a score according to a norm or along some sort of a scoring grid to represent a quantity of performance or a skill.

This definition suggests that testing involves elements such as identifying the content of the test, scoring the test using grids, interpreting test scores, formally recording test scores, and making decisions based on the meaning of test scores (Green, 2014). Consequently, testing assists teachers in analysing learners’ needs, comparing students’ achievement, and standardising their assessment practices (Douglas, 2002). On the other hand, assessment is an umbrella term that covers general classroom assessment practices such as formal tests, alternative forms of assessment and large-scale tests such as the Test of English as a Foreign Language (TOEFL) and the International English Language Testing System (IELTS) (Brown & Abeywickrama, 2018).

Assessment refers to “all those activities undertaken by teachers, and by their students in assessing themselves, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged” (Black & Wiliam, 1998, p. 2). This definition suggests that assessment refers to any method applied for the purposes of evaluation and conducted either by the teacher or by the student. According to Cheng & Fox (2017), the definition

suggests that assessment can involve the teacher, the student, and peers, and it can be carried out in the classroom or outside the classroom.

Assessment has two dimensions; it can be assessment for learning or assessment of learning. Assessment for learning is “ a process of seeking and interpreting evidence for use by students and their teachers to decide where students are in their learning process, where they need to go and how best to get there” (Cheng & Fox, 2017, p. 4). This suggests that assessment for learning is formative, and it is utilised to generate feedback that can be used to diagnose abilities and to obtain information that is to be used for planning future content, methods, or performance.

Swaffield (2011) made a distinction between ‘assessment for learning’ and ‘formative assessment’. The distinction is based on the following points:

- a) Formative assessment is an end or a feature of some feedback-based assessment tools, while assessment for learning is a learning and teaching process;
- b) Formative assessment is concerned with meeting long-term goals, while assessment for learning seeks to meet learning objectives immediately;
- c) Formative assessment creates information that can be beneficial to other teachers or students in a similar learning environment, while assessment for learning seeks to obtain feedback that benefits the particular teacher and students in a given classroom;
- d) Formative assessment is implemented by the teacher, and students may have limited involvement. However, in assessment for learning students can exercise autonomy;
- e) Formative assessment generates information to be used for improving learning, while assessment for learning is a learning process; and
- f) Formative assessment seeks to meet curriculum goals, while assessment for learning is concerned with improving learning.

Assessment of learning refers to “assessments that happen after learning has occurred, to determine whether learning has happened” (Cheng & Fox, 2017, p. 4). It is summative assessment that is used for measurement purposes. Assessment can be formative or summative. Formative assessment is a process of “evaluating students in the process of “forming” their competencies and skills with the goal of helping them to continue that growth process.

The key to such formation is the delivery (by the teacher) and the internalization (by the student) of appropriate feedback on performance” (Brown, 2003, p. 6). Black & Wiliam (2009, p. 9) argue that assessment is formative when “evidence about student achievement is elicited , interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction”. Cizek (2010, p. 6) views formative assessment as:

The collaborative processes engaged in by educators and students for the purpose of understanding the students’ learning and conceptual organization, identification of strengths, diagnosis of weaknesses, areas of improvement, and as a source of information teachers can use in instructional planning and students can use it in deepening their understanding and improving their achievement.

To elucidate this view, formative assessment provides information that helps both teachers and students to diagnose performance and learning needs. On the other hand, summative assessment “is used to evaluate student learning, skill acquisition and academic achievement at the conclusion of a defined instructional period” (Cheng & Fox, 2017, p. 5).

By contrast, according to Cheng & Fox (2017), summative assessment uses tests, assignments, and projects as techniques to help teachers measure the degree to which students have learned what they are expected to learn at an end of an instructional period for evaluative purposes to determine learning achievement with reference to a grade or score.

What emerges from the discussion is the assumption that self-assessment is an alternative form of assessment that came into vogue with the rise of contemporary assessment research. In this vein, it meets principles such as

washback and consequential validity due to its direct impact on learning processes. Furthermore, self-assessment is an assessment process not a testing process, because students conduct it. In addition, self-assessment can be a tool for both assessment for learning and assessment of learning. In the first case, it is formative. This means that students can use it to reflect on their learning and diagnose their performance and achievement in order to decide where and how they should improve it. As a tool for assessment of learning, self-assessment can be used for self-testing purposes and can involve self-grading.

Nevertheless, “assessment as learning” was suggested to categorise self-assessment (Cheng & Fox, 2017). Assessment as learning signifies that self-assessment is a feedback-oriented process, which contributes to the ongoing improvement of students’ learning. It also suggests that students’ involvement in assessing their performance and achievement can result in building their metacognitive processes and motivation. Therefore, “assessment as learning” advances formative, authentic, and self-regulatory features of self-assessment.

1.2.1 Self-assessment as Formative assessment

Formative assessment is “assessment that is specifically intended to provide feedback on performance to improve and accelerate learning” (Sadler, 1998, p. 77). It is also referred to as assessment for learning, or “guidance of learning” (Black, 1999, p 118; in Oscarson, 2009). Its purpose is to guide the learning process by helping students analyse their needs and know their levels of achievement, strengths, and weaknesses. It provides them with information that can be used to set goals and plan learning to address these needs. In line with this, students can analyse their needs and gain feedback on their performance through formative assessment.

In the literature (e.g. Black & Wiliam, 2009; Andrade, 2010; Yan & Brown, 2016), self-assessment has been referred to as a tool for formative assessment, which is used with the aim of improving students’ learning and achievement. Andrade (2010) indicated that the ‘formative’ dimension of self-assessment lies in the fact that it “is done on drafts of works in progress in order to inform revision

and improvement” (p. 92). Self-assessment is formative, because it is “a readily available source of feedback about students’ own understandings and performances” (ibid.). Feedback generated from self-assessment is personalised feedback.

A number of scholars, (Wiliam, 2000; Black et al., 2003, Wiliam, 2007b; in Black & Wiliam, 2009) suggested that self-assessment could promote formative assessment via the following practices:

- (a) . Familiarizing the students with criteria of quality work,
- (b) . Implementing questioning as a reflective practice techniques,
- (c) . Writing comments instead of scores or grades,
- (d) . Implementing peer- and self-assessment,
- (e) . Supplementing scores with written feedback

	Where the learner is going there	Where the learner is right now	How to get there
Teacher	1 Clarifying learning intentions and criteria for success	2 Engineering effective classroom discussions and other learning tasks that elicit evidence of student understanding	3 Providing feedback that moves learners forward
Peer	Understanding and sharing learning intentions and criteria for success	4 Activating students as instructional resources for one another	
Learner	Understanding learning intentions and criteria for success	5 Activating students as the owners of their own learning	

Figure 1: Aspects of Formative Assessment (Black & Wiliam, 2009, p. 8)

As shown in figure 1, Black & Wiliam (2009) suggested steps for formative assessment, and included self-assessment as a key strategy in these steps:

- 1) Sharing and explaining criteria of quality work with students,
- 2) Monitoring classroom discussions in order to gather evidence on students’ understanding of the content presented,
- 3) Providing constructive feedback,
- 4) Encouraging student-peer collaboration for instruction and assessment,
- 5) Encouraging students to be involved in their own learning.

Brown (2003, p. 5) states that formative assessment is used for “evaluating students in the process of “forming” their competencies and skills with the goal of helping them to continue that growth process”. Accordingly, it is process-oriented. It is not concerned with recording and grading performance; rather it is used to obtain information on performance that helps the student know the criteria of effective performance needed to develop learning. Consequently, when students know the criteria and standards of good work, they develop “a concept of quality” which is necessary for improvement (Sadler, 1998, p. 120).

Given that the function of formative assessment is to provide students with the parameters or criteria of successful performance necessary to detect learning weaknesses and strengths. This awareness is a form of diagnosis that students can perform on their learning processes and achievement. This diagnosis generates feedback, which can help them improve the quality of their work. Thus, formative assessment generates diagnostic information that students can apply to improve learning.

This suggests that the most important element of formative assessment is feedback, which is all information that indicates students’ strengths and weaknesses. Feedback is “information about the gap between the actual level and the reference level of a system parameter which is used to alter the gap in some way” (Ramaprasad, 1983, p. 4; in Sadler, 1998). Therefore, Feedback can indicate the gap between students’ actual level of achievement on the work being assessed and the required standard. It is used to close the gap or to fix limitations in students’ performance.

As previously discussed, formative assessment can also be used as a mediation tool. It generates feedback, which can be used to compare previous performance with new performance, and to link previous learning experiences with new ones through reflection. Students can use this feedback to make links, which help them learn by reflecting on how they performed. They can also apply this feedback to a new learning situation.

To increase the potential of feedback, students need to be continuously involved in self-monitoring and engaged in a process of reflecting on the quality of their work. They need to have different strategies to utilise for self-monitoring and refer to standards which allow them to compare their level of performance with what is required (Sadler, 1998). These elements can be achieved through self-assessment, which can provide “personalised feedback” or internal feedback (Gardner, 1999, p. 52). The latter encompasses all information resulting from self-monitoring. It is a ‘qualitative judgement’ performed directly by the student and used to diagnose performance (Sadler, 1998).

As discussed earlier, self-assessment is formative in nature because it is “focused on the improvement of learning rather than on the judging of final achievements for purposes of credentialing” (McDonald & Boud, 2003, p. 209). It is used with the aim of gaining information on students’ strengths and weaknesses and developing their knowledge of the criteria of good work.

Thus, self-assessment is an essential tool for formative assessment because it provides self-constructed feedback about present performance, and it familiarises the student of the desired objective and what is needed to fix discrepancies and to close the gap (Black and William, 1998; in Sadler, 1998).

According to Andrade (2010), the formative dimension of self-assessment emerges as teachers consider aspects such as students’ needs, purposes of self-assessment, procedures, and tools for self-assessment. It is argued that the more these aspects are addressed, the more self-assessment is tailored towards process-based learning.

In addition, to enhance the formative aspects of self-assessment, students need to be actively involved in setting goals, assessing their performance against criteria, assessing the attainment of the goals they set, and reflecting on the contribution of self-assessment on the development of their metacognitive knowledge (Andrade & Du, 2007).

The categorisation of self-assessment as formative is based on different aspects which highlight the idea that it provides information to the student that is beneficial to his/her learning. This is evident relying on the idea that self-assessment enables students to access metacognitive experiences that help them understand, examine, and evaluate their knowledge, attitudes, and potential as students. The information that students gain through these experiences is crucial to the development of self-determination explained in terms of developing self-regulated learning and positive perceptions of efficacy (Andrade, 2019).

Self-assessment involves students in a process of generating feedback on their own performance through self-monitoring and reflection (Andrade, 2010). This is linked to the fact that self-assessment outcomes are mainly formative, because it generates self-feedback.

In relation to its formative dimension, self-assessment leads to “creating qualitative information that can be applied for a resubmission of the work” (Panadero et al., 2019, p. 148). In line with this, Andrade (2018, p. 377; in Panadero et al., 2019) defined self-assessment in terms of feedback and highlighted its formative function. She suggested that self-assessment is used to “generate feedback that promotes learning and improvement in performance”. She added, “Self-assessment is a process of formative assessment during which students reflect on the quality of their work, judge the degree to which it reflects explicitly stated goals or criteria, and revise accordingly” (Andrade, 2010, p. 92). This suggests that formative assessment, helps students reflect on their work, generate feedback and make judgements.

Thus, using self-assessment for formative purposes helps students “to close the gap between their current performance and the expected goal” (Panadero et al., 2019, p. 148). Feedback constructed through self-assessment can be used to adjust learning processes and products (Panadero et al., 2019). In this vein, feedback was directly related to the use of self-assessment, and it was defined as “the implementation of self-assessment in ways that generate feedback information and processes for students’ own purposes” (p. 148).

In addition, feedback is defined as “processes where the learner makes sense of performance-relevant information to promote their learning” (Henderson et al., 2019, p. 16). According to Panadero et al. (2019), self-assessment becomes a source of self-feedback when it is implemented following these criteria: defining the criteria of self-assessment, explaining the criteria and giving students adequate training in using them, providing feedback on the quality of students’ self-assessment, providing guidance throughout the self-assessment process, providing adequate time for revision, and avoiding self-grading.

Yan & Brown (2017) linked self-assessment to feedback and claimed that self-assessment practices cover three major actions: identification of performance standards, generating self-feedback through self-monitoring, and self-reflection based on the feedback constructed. These processes work in a cyclical manner, by generating problem-solving processes that can inform strategy selection. Consequently, students construct feedback that shapes their capacity for self-regulation.

Yan (2016a; in Yan & Brown, 2017) identified two self-assessment processes: self-directed feedback seeking and self-reflection. Self-directed feedback seeking is “the process by which students initiate and take responsibility for seeking feedback from various sources for the purpose of self-assessment” (Yan & Brown, 2016, p. 3). This suggests that internal and external sources of feedback can be used in the process of forming self-directed feedback. Internal sources of feedback can be generated through reflection and problem solving.

Self-directed feedback is important for the process of self-regulation (Butler & Winne, 1995; in Yan & Brown, 2016). Self-assessment is a source of internal feedback, because “the power of self-assessment lies in two major domains—the integration of high-quality external and internal data to assess current performance and promote future learning” (Epstein, Siegel, & Silberman, 2008, p. 11; in Yan & Brown, 2016). This means that self-assessment engenders reflective processes necessary for the construction of internal feedback. Self-reflection is “the action by which students reflect on and evaluate the quality of their learning process and

outcomes with the support of available/gathered feedback, and identify their own strengths and weaknesses” (Yan & Brown, 2016, p. 4). It is a crucial component for constructing self-directed feedback, because it “helps students explore and elaborate their understanding of problems encountered during learning” (ibid.).

In order to expand on the feedback-oriented aspect of self-assessment, we review Biggs’s model (1993, 1999; in Carless, 2019) which is a 3P (presage, process, product) model of learners’ experiences of feedback. The assumption of the model is that previous experiences, learning strategies, and motivation are core to students’ construction of feedback (Carless, 2019). Moreover, the model views that construction of feedback is dependent on the type of learning and assessment activities teachers’ implement (ibid.). The model was adapted by Carless (2019) to explain the linear relationship among the three processes and how students can progress from presage to process to product during a feedback experience.

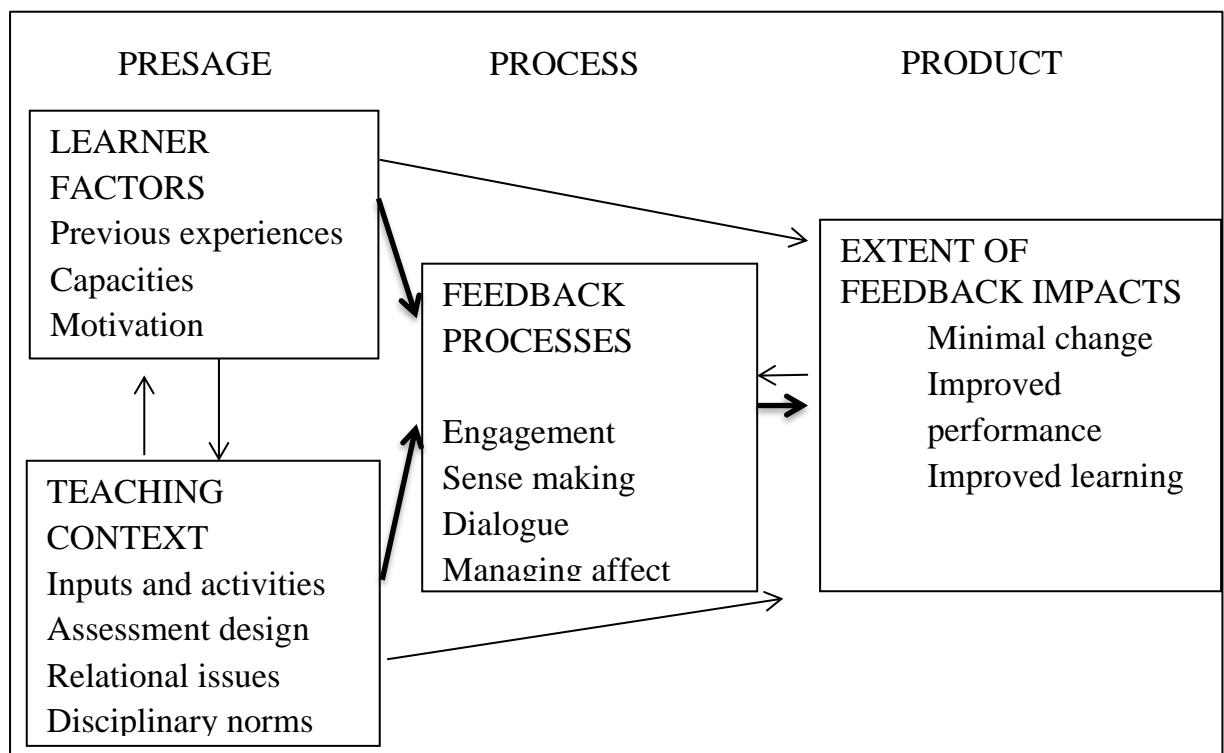


Figure 2: 3P Model of the Learner Experience of Feedback (Carless, 2019, p. 53).

Presage, process, and product represent a set of stages that describe how students experience feedback. The presage stage is about students’ prior experiences in engaging with feedback. It has two components: learner factors and

the teaching context. Learner factors encompass previous feedback experiences, potential capacity to process feedback, and motivation to apply feedback for future learning experiences and tasks. The teaching context includes teaching inputs, course design, learning activities, and assessment design (Carless, 2019).

Process stage refers to students' actual engagement with and response to feedback. It includes factors such as "the extent of engagement with feedback and making sense of feedback through interaction with text or others" (Carless, 2019, p. 54). Process-level components are linked to co-constructed dialogue, mediation, and managing affective factors (ibid.).

The quality of students' engagement in constructing feedback in the process stage depends on how they respond to previous feedback experiences, the extent to which they are able to apply their capacities for engaging with feedback, and their motivation to use feedback for ongoing performance (Carless, 2019). This means that process-level factors depend on presage factors.

Product stage is about the outcomes of feedback processes. It refers to the outcomes of the first stages of feedback. It results in shaping students' use of strategies and their perceptions of the feedback experience (ibid.). The interplay between self-assessment and the development of personalised feedback on performance echoes with the 3P model of students' feedback experience. Relying on the model, students' experience of feedback can reach optimum results through self-assessment, because it can strengthen the link between the presage, process, and product stages necessary for constructing self-feedback.

According to the model, students' construction of feedback is influenced by how they manage the presage, process, and product stages (Carless, 2019). It can be argued that self-assessment can provide necessary sources for the presage stage, because it is a source of students' motivation and self-directed feedback experiences. Moreover, self-assessment is based on mediation and can involve teacher-learner, learner-peer, or internal dialogue necessary for the process stage.

Thus, mediation and construction of meaning can occur during the process stage throughout self-assessment.

Motivation and mediation have direct effects on shaping students' use of strategies, and ultimately on the way they construct personalised feedback. To sum up, the formative nature of self-assessment as a feedback-oriented process allows us to interpret what otherwise may appear to be related to ideas for self-directed learning, directly associated with authentic assessment tools. From this perspective, self-assessment highlights the role of students' proactivity and centres on integrating students' perspectives in the assessment process as a way to maximise consequential validity, face validity, and washback.

1.2.2 Self-assessment as Authentic Assessment

Alternatives in assessment have received much attention in the field of language education with the rise of new Information and Communication Technologies ICTs (Dochy & McDowell, 1997). These alternatives in assessment are also called authentic forms of assessment and refer to “any method of finding out what a student knows or can do that is intended to show growth and inform instruction” (O'Malley and Valdez-Pierce, 1996, p. 1). As an alternative form of assessment, self-assessment is authentic and criterion-referenced.

Authenticity is related to the consistency of self-assessment with learning. In this regard, it raises students' awareness of standards and criteria, which make them able to appraise their strengths and weaknesses and eventually develop productive learning strategies. Additionally, it develops students' ability to be lifelong learners through accommodating a focus on lifelong learning skills such as critical skills, self-directed learning, and problem-solving (Tan, 2007). These skills improve students' ability for continuous re-evaluation of learning, and enhance their ability to reflect on the outcomes of self-assessing performance. Eventually, self-assessment meets the demands of lifelong learning, because it prepares students for continuous monitoring of learning and reflection on outcomes.

At the classroom level, the authenticity dimension revolves around the homogeneity of self-assessment with curriculum goals (O'Malley and Valdez-Pierce, 1996). Self-assessment is based on the use of criteria, which can be specified based on syllabus objectives. Thus, it can facilitate students' access to syllabus content. Moreover, it allows teachers to know students' needs based on information gained from self-generated feedback. Therefore, self-assessment can satisfy the principle of consequential validity, because it has positive consequences on students and teachers.

According to Gulikers, Bastiaens, & Kirschner (2004), authenticity is a crucial dimension for implementing assessment approaches. This is due to the fact that “a constructive alignment between instruction, learning, and assessment (ILA)” is crucial to meet the requirements of 21st century pedagogy (p. 67). This suggests that the processes of instruction, learning, and assessment need to be fused taking into account student involvement. Moreover, assessment, teaching, and learning need to be related to one another, and feedback is constantly needed to modify and improve the cycle (ibid.). Such constructive approaches can be achieved through implementing authentic assessment, which enables students to reflect on their learning (Birenbaum & Dochy, 1996).

To highlight this point, authentic assessment refers to “an assessment requiring students to use the same competencies, or combinations of knowledge, skills, and attitudes, that they need to apply in the criterion situation in professional life” (Gulikers, Bastiaens, & Kirschner, 2004, p. 69). These authors argue that the magnitude of resemblance of an assessment tool to the criterion situation informs its authenticity dimension.

From this perspective, self-assessment meets the criterion of authenticity, because it helps building lifelong learning skills, which can occupy an important role in students' learning experiences. It enables them to develop their ability to form judgements on how good they are or how well they have performed. Students are routinely involved in assessing their language abilities, even informally.

Nevertheless, using self-assessment in a structured manner can be more constructive.

Self-assessment meets the principle of authenticity, because it can be regarded as an accepted and significant skill that enables students to become responsible students who are capable of monitoring their learning autonomously. As a lifelong learning skill, self-assessment helps students monitor “what is known, what remains to be known, and what is needed to bridge the gap between the two” (Boud, 1995, p. 13). Boud (1995) added other dimensions to the authenticity of self-assessment. These were expressed in terms of enhancing intrinsic motivation for learning, developing skills such as problem solving needed for lifelong learning, improving students’ ability to independently monitor performance, and preparing them to take responsibility for the judgements they make. Gulikers, Bastiaens, & Kirschner, (ibid.) suggest that to implement authentic assessment teachers need to consider the following practices:

- a) Coordinate authentic assessment with authentic instruction, which can involve the utilisation of authentic materials,
- b) Enable students to demonstrate their competencies not only their reproduction of knowledge and mastery of skills,
- c) Consider students’ perceptions and motives to improve their learning.

Such teachers’ attempts might result in (a) facilitating integration of assessment to learning; (b) enabling students to apply reflective and metacognitive processes; and (c) promoting their positive perceptions and motivation as a result of successful use of strategies.

In support of this view, Villarroel et al. (2017, p. 2) understand authentic assessment as “realism, contextualisation and problematisation when teaching and assessing curricular content”. Realism involves integrating learned knowledge with everyday life situations. Contextualisation “characterises situations where knowledge can be applied in an analytical and thoughtful way” (ibid.). Problematisation is understood as transferability of problem solving skills to novel situations to solve problems or to satisfy needs (ibid.).

Therefore, self-assessment satisfies the ‘realism’ criterion, because teachers can use it for students as an extra-curricular activity. It can be context-specific, since students can integrate it in their day-to-day classroom tasks for continuous self-monitoring. Self-assessment facilitates problem solving when it is used as a criteria-based diagnostic tool. Swaffield (2011) Argued that authentic assessment is assessment for learning. She believes that formative assessment is an end, and it is different from assessment for learning, which is a teaching and learning process. Authentic assessment for learning depends on methods such as self-assessment, peer-assessment, questioning, and giving feedback (ibid.).

Self-assessment is an authentic assessment tool that has changed the way students are assessed. By focusing on well-designed criteria, students are expected to demonstrate their metacognitive competencies and are actively involved in reflecting on their own work. The opportunity to engage students in the assessment process is realised through self-assessment, which responds to authenticity criteria evident in optimizing students’ metacognitive skills.

In this line, Tan (2007) emphasised the role of self-assessment in promoting authentic skills needed to prepare students who are capable of monitoring their learning. Lifelong learning skills have been expressed in terms of critical skills, self-directed learning, and responsibility for learning. Critical skills are skills that “equip students to conduct and evaluate their own learning” (Tan, 2007, p. 114). Critical skills such as reflective thinking and problem solving assist students to assess their progress and outcomes.

Consequently, Self-assessment prepares students for self-directed learning, because it involves them in a process of autonomously monitoring their progress. Self-directed learning is about students’ ability “to plan and direct their own learning in order to pursue learning situations without the assistance of the teacher” (ibid. p. 115). This means that, self-assessment promotes responsibility for learning, which is about students’ ability to make informed judgements and diagnose abilities relying on pre-defined standards. In turn, this enables them to

re-examine their potential and their attitudes towards their learning and themselves as learners.

At a pedagogical level, Villaroel et al. (2017) viewed self-assessment as part of a model to develop authentic assessment in the language classroom. The model presents key steps to enhance the authenticity dimension in assessment practices. To that end, it is necessary to consider the assessment context before designing assessment criteria, which can be shared with students. In addition, teachers need to design assessment for tasks that may require higher order skills. The third step involves students' capacity for judgment and for applying criteria and rubrics in a reflective way in order to generate formative, summative, and sustainable feedback that can nurture their potential for making informed judgements for future tasks.

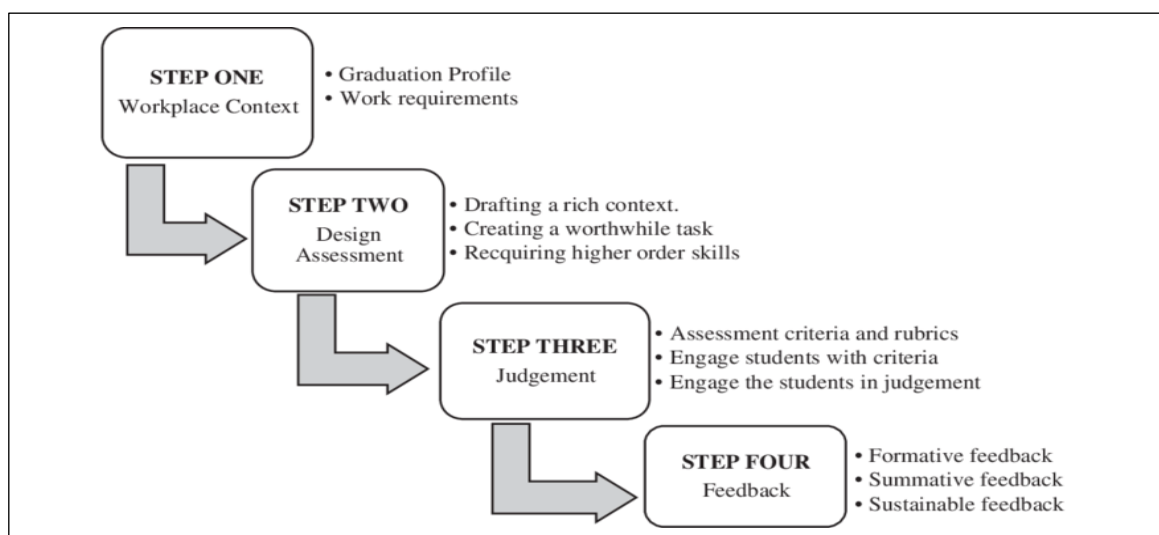


Figure 3: Model to Build Authentic Assessment (Villaroel et al., 2017, p. 8)

A view of self-assessment as an authentic practice for assessment suggests conceptualising it as a lifelong learning strategy that functions based upon both internal criteria (i.e. self-evaluative standards) and external criteria (i.e. context-generated standards) necessary to inform decision making about performance.

1.2.3 Self-assessment as a Metacognitive Learning Strategy

Metacognitive learning strategies are “general skills through which learners manage, direct, regulate, and guide their learning; i.e., planning, monitoring, and evaluating” (Wenden, 1999, p. 519). Metacognitive strategies are planned

techniques used to regulate one's learning in terms of setting goals and plans for task initiation, diagnosing one's performance and managing breakdowns, reflecting on the results, and giving an estimation on the effectiveness of one's performance.

Accordingly, metacognitive learning strategies encompass planning, goal setting, organising, self-monitoring, and self-evaluating (O'Malley & Chamot, 1990). Self-monitoring is "conscious decision to monitor-that is, notice and correct... errors in any of the language skills" (Cohen, 2011, p. 161). According to Cohen (2011), self-monitoring involves using peer comments and checklists to reflect on performance. Self-evaluating involves the use of self-assessment checklists, journals, portfolios, rating scales, goal-setting forms, self-check comprehension questions, self-assessment questionnaires, peer-checklists, and self-recording (Brown, 2003). Self-constructed tests are also included as self-evaluation tools (Cohen, 2011).

Self-assessment has been described as a metacognitive learning strategy (Oxford, 1990; O'Malley & Chamot, 1990; Cohen, 2011) which involves students in assessing their learning processes and products relying on reflection processes. As a metacognitive learning strategy, self-assessment can be selected consciously as a learning method in response to a need to control a learning situation. It can be implemented in accordance with the nature and requirements of a task in order to manage difficulties and obstacles.

As a metacognitive learning strategy, self-assessment is consistent with self-regulated learning and contributes to improved metacognitive skills. Furthermore, students can improve their capacity for self-regulation through self-assessment (Brown & Harris, 2013). Self-regulation processes are worth considering, because they help us understand the metacognitive competencies that students can acquire after using self-assessment.

1.2.4 Self-assessment as a Self-regulation Process

There are aspects of self-regulation such as self-monitoring, self-observation and self-judgement, which are associated with self-assessment

(Andrade, 2010). These aspects of self-regulated learning can be fulfilled when self-assessment is formative and feedback-oriented (ibid.).

The model developed by Andrade (2010) (Figure 4 below) demonstrates the relationship between self-assessment and self-regulated learning, and indicates that self-assessment and formative assessment are two components of self-regulated learning (ibid.). Feedback generated from self-assessment can help students bridge the gap between their current performance standards and the standards specified through self-assessment. In the same vein, Hattie & Timperley, 2007 (in Andrade, 2010) added that the purpose of feedback is “reducing discrepancies between one’s goal and one’s current understandings and performance” (, p. 96).

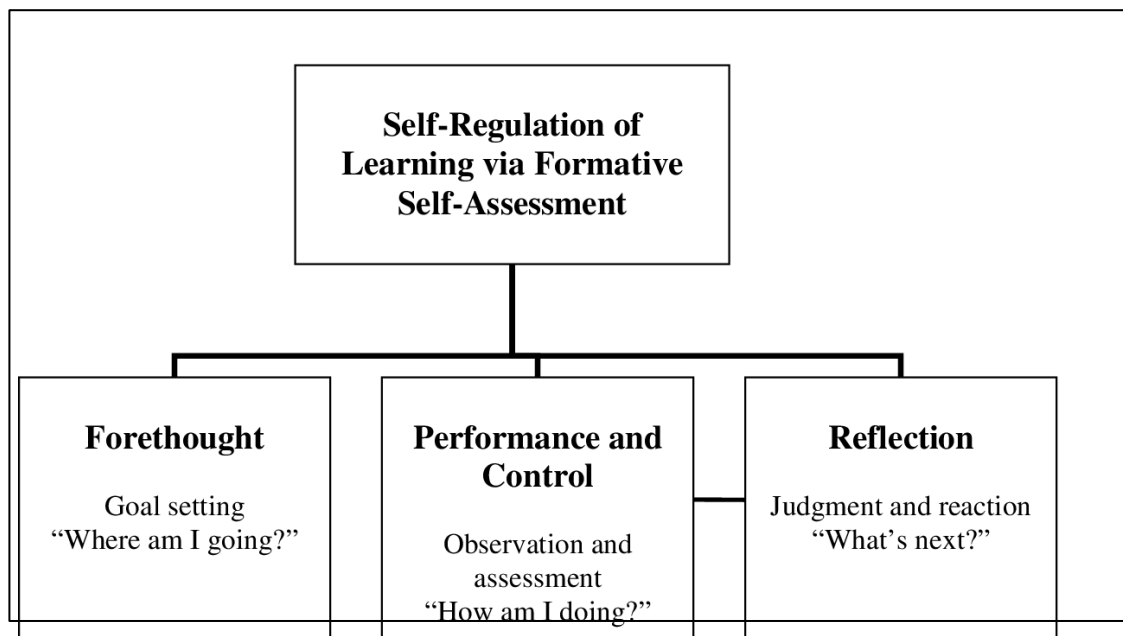


Figure 4: Self-regulated Learning and Formative assessment (Andrade, 2010, p. 96).

This model highlights that self-assessment can enhance self-regulation, because it can involve students in constructive processes of goal setting and monitoring (Pintrich, 2000). Therefore, they can build metacognitive knowledge and ability to know how to use strategies. Furthermore, students can learn how to regulate their motivation and behaviour. Interestingly, students can develop

increased awareness of their motivation, maintain interest, and build self-efficacy beliefs (Panadero & Alonso-Tapia, 2014).

That being said, we define self-assessment as a self-regulation process. Jointly, an analysis of views on self-regulation can advance defining characteristics of self-assessment, which can be stated as (a) a process of using metacognitive knowledge, (b) setting goals, (c) and reflecting on the attainment of goals. Following is a review of self-regulation in order to explore these aspects. In the course of self-regulated learning, metacognitive strategies are implemented in order to activate, maintain, and develop cognitive and affective processes. The ultimate objective is to achieve learning goals (Zimmerman & Schunk, 2011). Nevertheless, success in implementing metacognitive strategies relies on the beliefs students hold about their capabilities to do so (Schunk & Ertmer, 2000). This suggests that the ability to implement metacognitive and affective strategies is linked to self-efficacy beliefs that students hold.

In support of this view, self-regulated learning SRL theory highlights the interconnectedness between beliefs and strategic efforts. Accordingly, students' ability to process strategies to manage their learning and achievement depends on the beliefs they hold concerning their capability (Zimmerman, 2013). According to Bandura (1991, p. 248), self-efficacy plays "a central role in the exercise of personal agency by its strong impact on thought, affect, motivation, and action". In this vein, self-efficacy beliefs are processed throughout the self-regulation process whereby positive self-perceptions of ability become a source to guide and motivate the student to implement necessary strategies to achieve learning goals.

This suggests that self-efficacy beliefs are linked to other aspects of motivation, goal orientation, anxiety, and the use of self-regulated learning strategies (Usher & Pajaras, 2008; Zimmerman & Kitsantas, 2007). Self-efficacy beliefs promote personal agency, which is linked to learned hopefulness and learner empowerment (Zimmerman, 1990). Learned hopefulness was defined by Zimmerman (1990, p. 72) as "the process of learning and utilizing problem-solving skills and the achievement of perceived or actual control". It is a process of

developing self-efficacy or a sense of confidence in one's ability (ibid.). This is the result of developing knowledge, skills, and intrinsic motivation through problem solving.

Self-efficacy for self-regulated learning is linked to students' confidence in utilising self-regulated learning strategies (Zimmerman & Kitsantas, 2007). Self-efficacy is critical throughout the process of monitoring the attainment of goals of a learning task. Schunk & Ertmer (2000) believe that self-efficacy is necessary for self-assessment and monitoring, because successful self-assessors start with specific goals and deploy self-efficacy beliefs in order to monitor their learning and attain their goals (ibid.).

From a socio-cognitive perspective, self-regulation is the interplay among personal, behavioural, and environmental triadic processes (Zimmerman, 2000). It is a skill of controlling and self-managing personal and environmental factors and perceived ability for enactment of these skills. From this perspective, self-regulation refers to "self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals" (Zimmerman, 2000, p. 14).

This definition is based on the agency view of self-regulation (ibid.). It suggests that self-efficacy from a socio-cognitive view depends on affective factors as much as it depends on strategic planning. In this vein, quality of strategic behaviours is determined by students' self-beliefs and motives. The agency view highlights the role of self-efficacy, which is viewed as a contextual process that determines the degree of personal motivation to self-regulate one's performance (Pajaras & Miller, 1994; in Zimmerman, 2000). Accordingly, self-efficacy is defined as "beliefs about one's capabilities to organize and implement actions necessary to attain designated performance of skill for specific tasks" (Zimmerman, 2000, p. 14).

From a socio-cognitive view, self-regulation processes are cyclical, and depend on feedback loops. Feedback loops are described as a set of information

students generate from executing strategies, and are applied to future performance in order to guide it (Zimmerman, 2000). The information gained from feedback loops is essential to guide the self-regulation process. This is due to the fact that personal, behavioural, and environmental factors change throughout performance of a skill or a task (ibid.).

Self-regulation encompasses three self-oriented feedback loops: personal, behavioural, and environmental. They are used proactively for the attainment of personal goals (Zimmerman, 2000). Behavioural self-regulation encompasses self-observation to improve the use of learning strategies. Environmental self-regulation refers to self-observation to adjust and improve environmental conditions. Covert self-regulation refers to monitoring the use of metacognitive strategies and affective states during performance. These feedback loops are open; i.e., they are applied proactively not only to fix performance discrepancies, but also to enhance performance standards by setting goals and planning future actions (ibid.).

Proactivity is not limited to making strategic choices and setting goals, but it involves improving the application of strategies by building positive affective states. From the perspective of socio-cognitive theory, self-regulation has various components that can affect students' learning and performance (Bandura, 1989; Zimmerman, 2000). These components are intertwined, and work in an interrelated manner (Usher & Schunk, 2018). They are briefly dealt with below:

The first component is cognition. It has two elements long-term memory and working memory. Cognition functions based on cognitive schemas, which are used to solve problems (Usher & Schunk, 2018). The latter are activated in long-term memory, and they can help to guide students in the course of taking decisions. The use of schemas enhances the functioning of working memory especially to solve difficult tasks. The functioning of cognition is also influenced by factors such as learner characteristics (e.g. age, gender, and expertise), task features, and environmental features (e.g. the setting) (Choi et al., 2014; in Usher & Schunk, 2018).

The second component is behaviour. Behaviour encompasses different components directly related to behavioural self-regulation. Behavioural self-regulation refers to adjusting the learning setting by applying different learning strategies such as taking notes, rehearsing, and self-rewarding depending on learning needs and achievement. Behavioural processes can occur throughout different phases of self-regulation including performance phase, forethought phase, or reflection phase (Usher & Schunk, 2018).

Motivation is the third component, which is crucial to sustaining action and applying strategies more efficiently. Self-beliefs are also included in this category, and they are thought to be essential for the maintenance of self-regulatory behaviour (Usher & Schunk, 2018). Self-beliefs determine self-expectancy. To explain, when students have high self-beliefs, they tend to expect that their actions can lead to the desired outcomes. Furthermore, motivation influences outcome expectations, and it has an impact on self-regulatory behaviour. For instance, if students expect that their strategies will lead to the desired outcome, they can be motivated to use these strategies.

Emotion is the fourth component of self-regulation. Usher & Schunk (2018) believe that students' feelings throughout performance play a significant role in the implementation and maintenance of self-regulation processes. Emotion was included to describe self-regulation, because ability to regulate emotions can reinforce information-processing (Pekrun, 1992; in Usher & Schunk, 2018).

There are also social component related to self-regulation. It is argued that regulation of learning activities is facilitated by social interactions, which permit knowledge construction that occurs through socially mediated tasks. In addition to cognitive consequences, social networks can add an affective dimension, because they can help students overcome challenges and build motivation (Usher & Schunk, 2018). Social interactions can reach optimum results when standards and goals are shared among the members of the social community; i.e., student and peers.

There are macro and micro environmental factors that can influence students' self-regulatory behaviours, thoughts, and feelings. They are related to the level of students' exposure to threats in their environment (Usher & Schunk, 2018). Macro-level environmental factors include one's living arrangements, and economic status. Micro-level factors encompass school climate or classroom climate (ibid.). Environmental factors form external regulation. This means that self-regulation can be applied more efficiently when environmental factors such as social pressure, time constraints, or deadlines are imposed on students to organise the learning situation.

Macro factors such as students' living conditions can also influence their self-regulation processes. These factors can either help students to overcome obstacles or prevent them from withstanding environmental challenges. When environmental conditions are conducive, students can be capable of implementing self-regulation processes (ibid.). Consequently, they can develop a strong sense of self-efficacy and motivation.

Winne (2018) describes self-regulation as a fusion of cognition, metacognition, and motivation. Cognition is a process of operating and producing information. It involves different processes such as encoding, retrieving, comprehending, predicting, solving, reasoning, and imaging. Basic cognitive processes include searching, monitoring, assembling, rehearsing, and translating (ibid.).

Metacognition is a process of operating information about cognition. Nelson & Narens (1990; in Winne, 2018) described metacognition in terms of two principles. First, metacognition has two interrelated levels, a meta-level, and an object-level. The meta-level contains a mental simulation of the object-level. Second, it has two basic relations, control and monitoring. Metacognitive processes work is based on the coordination of interrelated executive functions that are responsible for updating working memory, which enables students to monitor and modify information (Winne, 2018). Updating working memory also enhances metacognitive processes.

Motivation is another influential element of self-regulation. Motivation and emotions are engendered automatically throughout metacognitive processes. These affective factors serve different roles. They are used in the initial phases of self-regulation to enhance the execution of metacognitive processes. In addition, they are used during the performance phase to determine students' implementation of standards used in metacognitive monitoring. In final phases, they can facilitate students' goal setting decisions and strategy selection for future tasks (Winne, 2018).

In addition, motivation plays a central role in goal setting (Efklides, Schwartz, & Brown, 2018). To explain, motivation is a positive affective response that occurs before, during, or after a self-regulation cycle. Motivation as other affective responses is a metacognitive experience that represents a conscious awareness of the state of progress in relation to strategy use. Affect and metacognition interact throughout a self-regulation learning cycle. For instance, motivated students are able to set precise goals.

To conclude, affective factors such as motivation arise out of metacognitive experiences. Through metacognitive monitoring, students undergo metacognitive experiences that enable them to diagnose and realise correctness from erroneousness (Efklides, Schwartz, & Brown, 2018). Thus, students are informed of their state of knowledge, ability to remember, and ability to implement strategies. As a result, they develop emotions in response to their current state of cognitive potential, and these can be either positive or negative.

The type of emotions engendered from metacognitive experiences, either positive or negative are affected by the type of goals students set. Mastery goals that are set to improve competence are neutral (ibid.). This means that they do not engender negative emotions, because they are set in response to intrinsic factors. On the other hand, performance-avoidance goals can engender negative metacognitive experiences, because they are set to demonstrate competence (ibid.). This means, failure to achieve these goals can be a sign of low competence and may lead to anxiety and low self-efficacy beliefs.

A strong link has been established between self-assessment and self-regulation (Andrade, 2010; Panadero & Alonso-Tapia, 2014). This link was based on socio-cognitive theory, which integrated self-monitoring as a crucial aspect of self-regulated learning. Moreover, self-assessment was conceptualised as a self-regulation learning strategy (Panadero & Alonso-Tapia, 2014).

As discussed in previous sections, the development of self-regulation depends on the use of self-assessment as a self-monitoring technique. Furthermore, self-efficacy is another component of self-regulation, and self-assessment is believed to enhance students' perceived capability (Panadero & Alonso-Tapia, 2014). There are different sources which can increase students' self-efficacy; namely, students' experience of successful performance and knowledge of the expected outcome (Bandura, 1991).

Using self-assessment, students can gain an understanding of the requirements of quality work, or the criteria that can lead to the expected outcome. Consequently, they can develop a sense of self-efficacy. Moreover, application of standards may help students experience successful performance, and this can engender positive perceptions of ability (Panadero et al. 2017).

Self-assessment can enhance self-regulation by helping students to obtain a clear view of their goals, monitor the process of attaining goals, and by facilitating reflection on the achievement of goals or learning outcomes (Panadero, et al., 2017). In relation to the components of self-regulation previously mentioned, social factors play an important role in the development of self-regulated learning. Implementing follow-up feedback after administering self-assessment can increase social interaction between the teacher and the students, and it can enhance mediation on tasks.

The development of self-regulation depends on motivation. Self-assessment has become one of the tools that can be used to enhance students' motivation, because it directly involves them in assessing their own learning processes and outcomes, and can therefore increase their interest in learning tasks. Models that

explain self-regulated learning generally describe self-regulation as an interplay between metacognition and motivation (e.g. Zimmerman, 2000).

The relationship between self-regulation and motivation can be understood in terms of different components of self-regulation such as goal setting, self-monitoring, and self-efficacy. Goal setting enhances motivation, because through goals “the student focuses on the task at hand and what needs to be done to improve knowledge, understanding, and skill” (MacMillan & Hearn, 2008, p. 43).

Engagement with the task makes students more motivated to meet the goals of the task. Self-monitoring makes students immersed in the task and this can increase their intrinsic motivation (ibid.). Self-efficacy is related to the fact that the more students hold positive perceptions concerning their ability as learners, the more they become intrinsically motivated.

Zimmerman conceptualised a socio-cognitive perspective of SRL grounded on three consecutively developed models; namely, the Triadic Model of SRL (Zimmerman, 1989), the the Cyclical Phases Model (Zimmerman, 2000), and the Current Version Cyclical Phases Model (Zimmerman & Moylan, 2009) which are examined next. These models share the conception that self-regulation involves control of cognition, metacognition, motivation, and behaviour.

The first model (Figure 5) was developed in 1989, and it explained the key elements that define SRL. It was the Triadic model of SRL (Zimmerman, 1989), which includes three forms of SRL: environment, behaviour, and person level. Behavioural influences involve self-observation, self-judgment, and self-reaction. Environmental influences include the learning context, verbal persuasion, the physical and social setting where learning occurs, and direct assistance.

Personal influences involve students’ metacognitive knowledge, metacognitive strategies, goals, and affects. Personal processes are primarily metacognitive. They include planning, goal-setting, setting self-evaluative standards, using cognitive strategies, and mental imagery. This system of using strategic self-regulation is related to writers’ self-efficacy, which determines the

load of metacognitive and cognitive processing the student exerts on a learning task (ibid.).

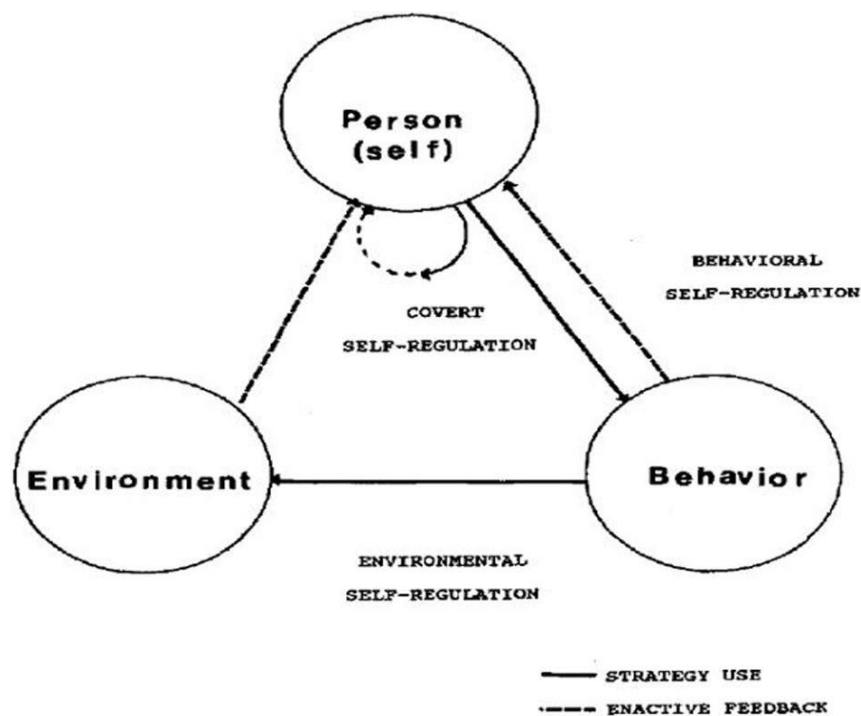


Figure 5: Triadic Model of SRL (Adapted from Zimmerman, 1989; in Panadero, 2017, p. 3)

The second model (Zimmerman, 2000) (Figure 6) focuses on covert self-regulation presented in the first model. It explains that SRL follows cyclical phases that involve metacognitive and motivational processes. This model is organised in three phases: forethought phase, performance phase, and self-reflection phase that explain self-regulation processes.

The forethought phase involves planning, task analysis, and goal setting. It depends on motivational beliefs that influence the activation of strategies. In the performance phase, students execute the task and monitor the use of strategies. They rely on motivational beliefs to control the use of strategies. In the same way, they implement efficient strategies to enhance their motivation. Self-reflection phase involves assessment of performance in terms of strategies utilised and development of affective factors, which can be either positive or negative depending on the judgments students form.

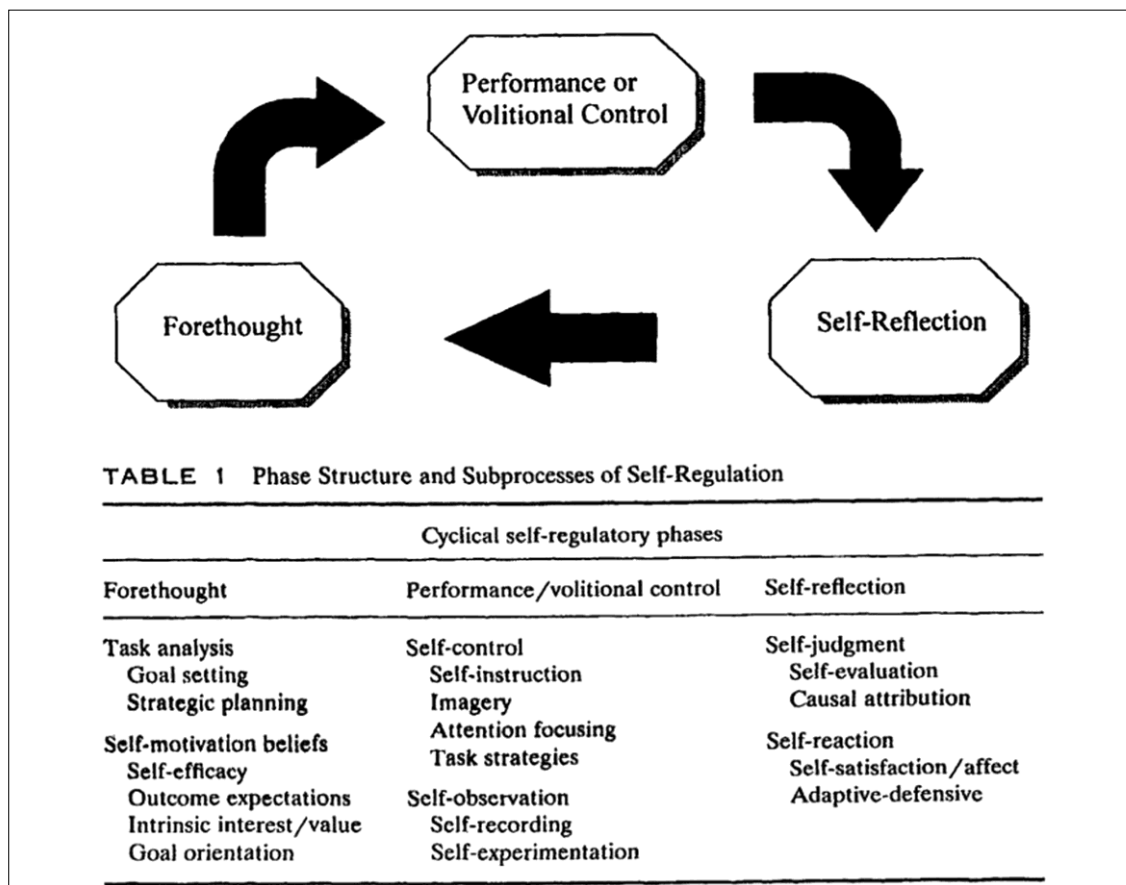


Figure 6: Cyclical Phases Model (1st version) (Adapted from Zimmerman, 2000; in Panadero, 2017, p. 4)

Similarly to the cyclical phases model (Figure 6), the new version developed by Zimmerman & Moylan (2009) (Figure 7) includes new metacognitive strategies. From the perspective of the model, self-regulation processes are strategic and affective, and fall into three cyclical phases: forethought, performance, and self-reflection phases.

The forethought phase has two categories: task analysis and self-motivational beliefs. Task analysis involves goal setting and strategic planning. Self-motivational beliefs are key for successful implementation of goal setting and strategic planning. They include self-efficacy, outcome expectations, intrinsic interest, and goal orientation (Zimmerman & Moylan, 2009).

These self-motivation beliefs are interrelated, and influence task analysis. For example, self-efficacy beliefs affect goal setting in the following way: when

students perceive themselves as capable of doing a task, they are more likely to set higher goals and stay committed to meeting them. Similarly, goals can affect self-efficacy beliefs. When students set or attain goals for their learning, they can develop self-efficacy beliefs.

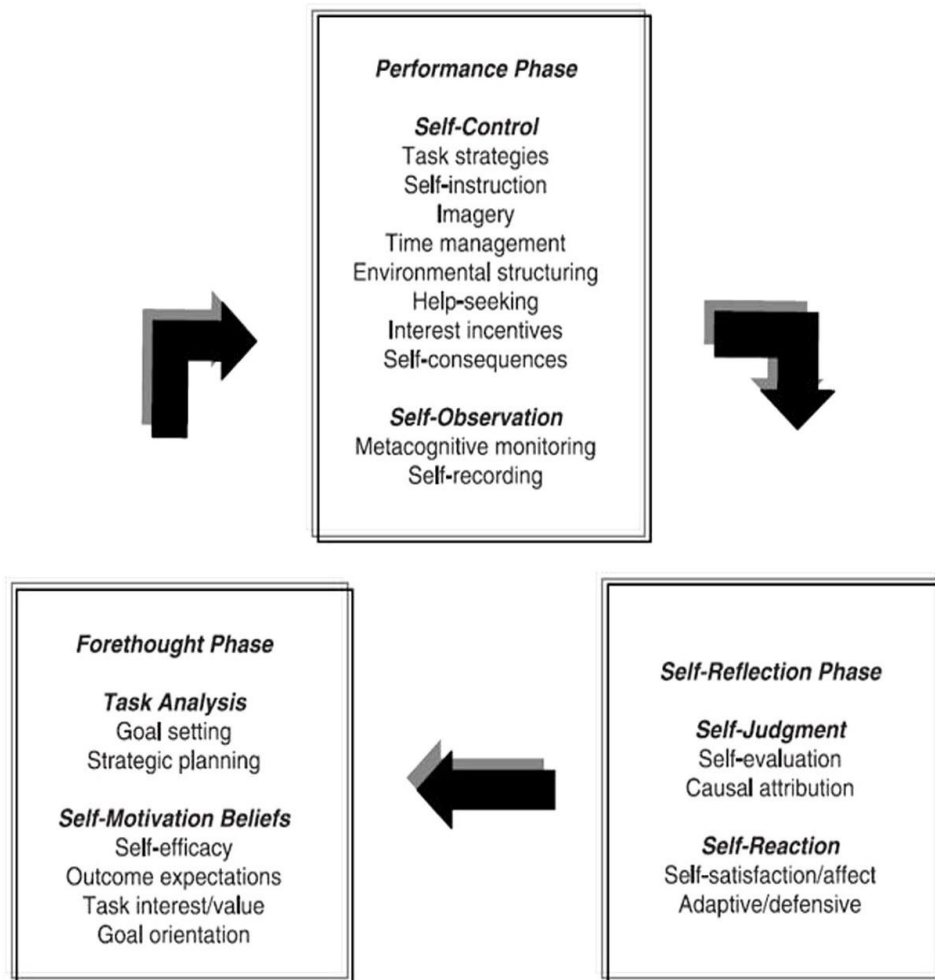


Figure 7: Current Version Cyclical Phases Model (Adapted from Zimmerman & Moylan, 2009; in Panadero, 2017, p. 5)

The forethought phase involves the students in task analysis. They also analyse their capacity to perform it. Task interest task and goal orientation increase students' ability for planning and performing effectively. Through this phase, students undergo two processes (Panadero & Alonso-Tapia, 2014):

- (a) Task analysis by forming a mental representation of the task and the necessary dynamics of performance,

- (b) Task analysis by analysing the value of the task. This can have direct impact on motivation and the effort exercised, which is envisaged in terms of the use of metacognitive strategies.

It can be seen that the forethought phase involves self-regulated students in processes of analysing and identifying the strategic and affective demands of the task. This analysis prepares them for the performance phase, which depends on an increased awareness of strategic choices and an adaptation of positive affective factors.

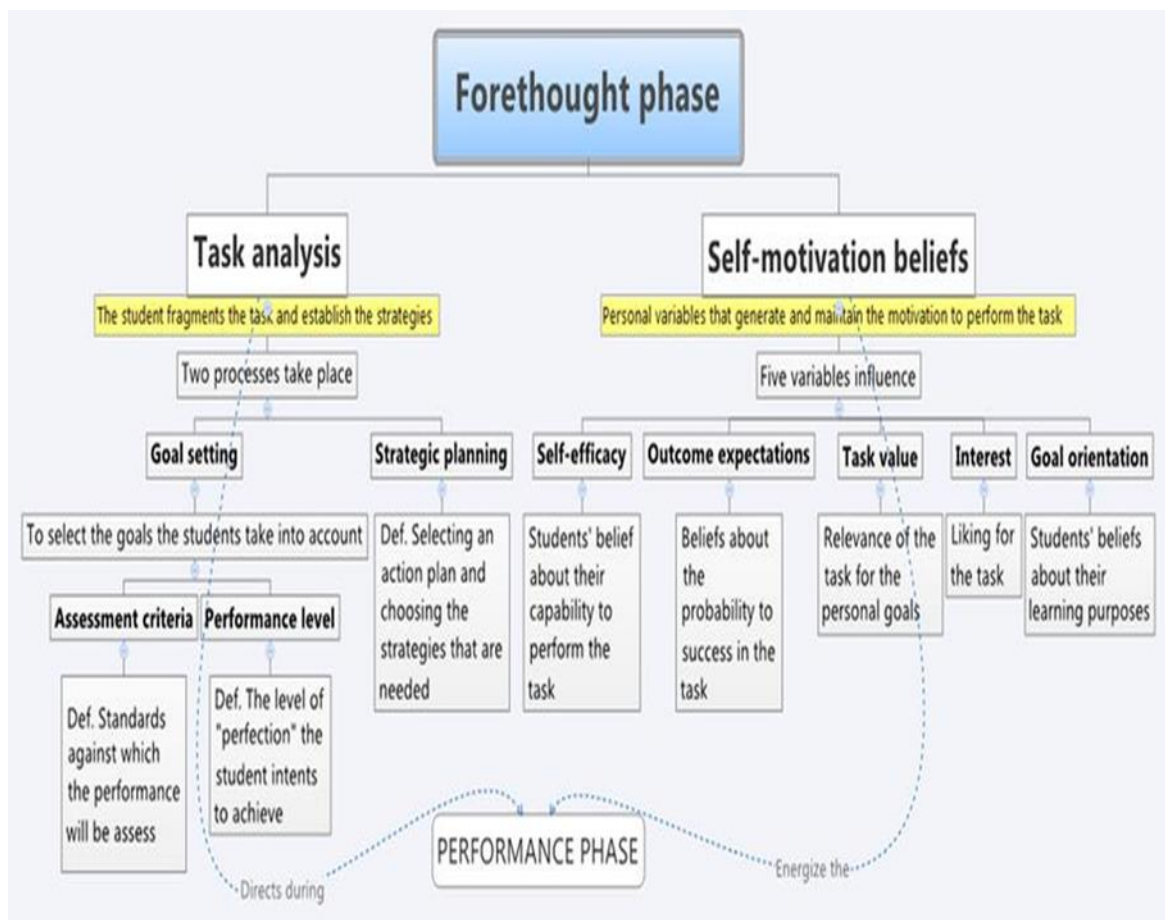


Figure 8: Forethought Phase (Panadero & Alonso-Tapia, 2014, p. 453)

The second phase is performance phase and encompasses self-control and self-observation. Self-control involves processes such as self-instruction, imagery, attention focusing, and task strategies (Zimmerman & Moylan, 2009). Self-instruction refers to verbalising task performance. Attention focusing involves maintaining concentration during task performance in order to enhance it by using

different learning strategies either cognitive, affective, or environmental. Task strategies are about applying techniques to facilitate task performance (ibid.).

Self-observation refers to monitoring specific aspects of performance. It can be affected by different variables such as self-feedback (ibid.). Self-feedback occurs in response to student’s self-monitoring, and can lead to modifying strategies. Accurate self-observation can lead to developing informative feedback. Self-recording can be used as a technique for self-observation. It facilitates accuracy of monitoring and organisation of goals, and improves the quality of feedback (Zimmerman & Kitsantas, 1997).

Through self-observation, students are involved in self-experimentation (Bandura, 1991). While self-observation enables students to obtain diagnostic information on their performance, self-experimentation is a strategy that enhances this feature, because it engages students in reflective thinking.

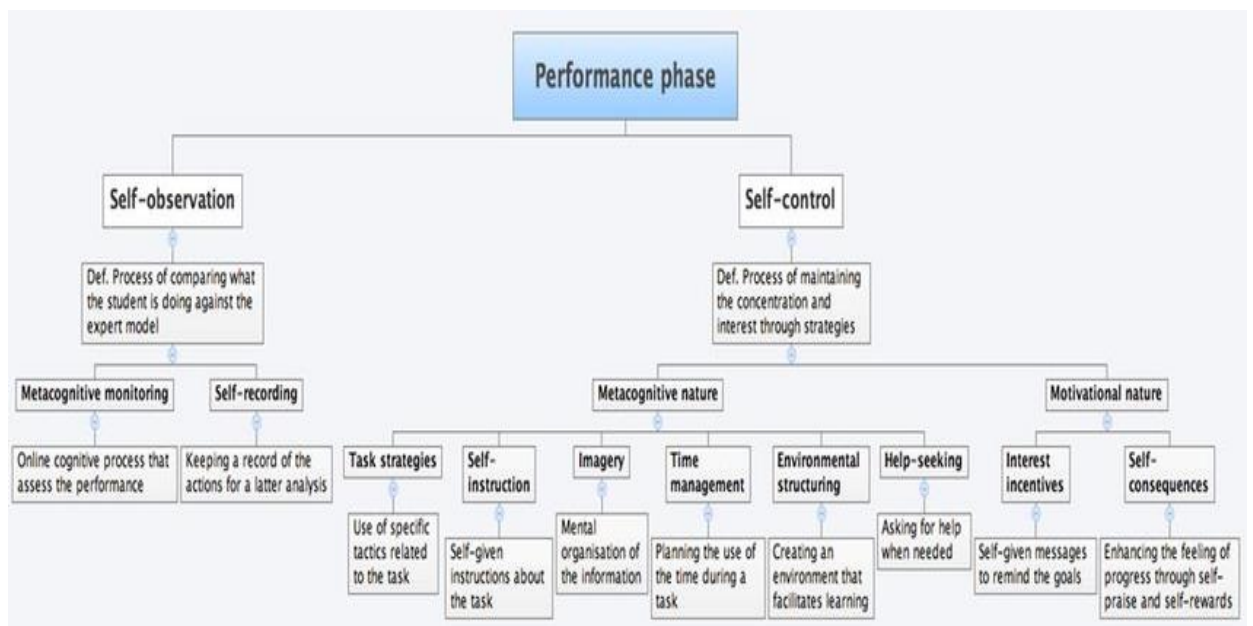


Figure 9: Performance Phase (Panadero & Alonso-Tapia, 2014, p. 455)

The third phase is self-reflection phase. It involves two processes: self-judgement and self-reactions. Self-judgment is about evaluating one’s performance and forming attributions to the likely causes of performance, which can directly affect self-efficacy beliefs (Zimmerman & Moylan, 2009). Self-

evaluation refers to analysing one's self-monitored performance in relation to criteria or goals (ibid.). The criteria that students use for self-evaluation are mastery, previous performance, normative, and collaborative (ibid.).

Mastery refers to the utilisation of tests to analyse one's performance. It can include self-testing techniques. Previous performance refers to comparing current performance with previous performance levels and this leads to obtaining feedback. Normative criteria are a type of social comparison, and involve comparing one's performance against performance of other students from the same social group. Collaborative criteria are the ones that students develop to reach a particular goal or to fulfil a particular role (Panadero & Alonso-Tapia, 2014).

Self-judgements are related to causal attributions. The type of judgement students form whether positive or negative is informed by the perceived causes of failure or success (ibid.). Causal attributions refer to students' appraisal of factors that affected their performance. They are crucial for self-judgement, because if failure in performance is attributed to lack of ability, students can build low self-judgement that can directly influence self-reactions.

Self-judgements directly influence self-reactions. The latter can be manifested in the form of either adaptive or defensive affective reactions. Adaptive reactions such as self-efficacy beliefs are developed when students attribute their success to their ability to apply strategies. Defensive reactions are developed as a result of attributing failure to inability to use strategies, and can lead to anxiety, dissatisfaction, or low self-efficacy beliefs (Zimmerman & Moylan, 2009; Zimmerman, Bandura, & Martinez-Pons, 1992).

Self-reflection phase presents a mutual relationship between self-judgements and self-reactions. It involves students in judging their work and their ability to perform. Students form expectations about the results of their work, which can be justified based on the way they handled the task. The justifications they give for their success or failure result in forming positive or negative reactions or emotions

depending on the judgement they form. These reactions influence their motivation and their ability to regulate future tasks (Panadero & Alonso-Tapia, 2014).

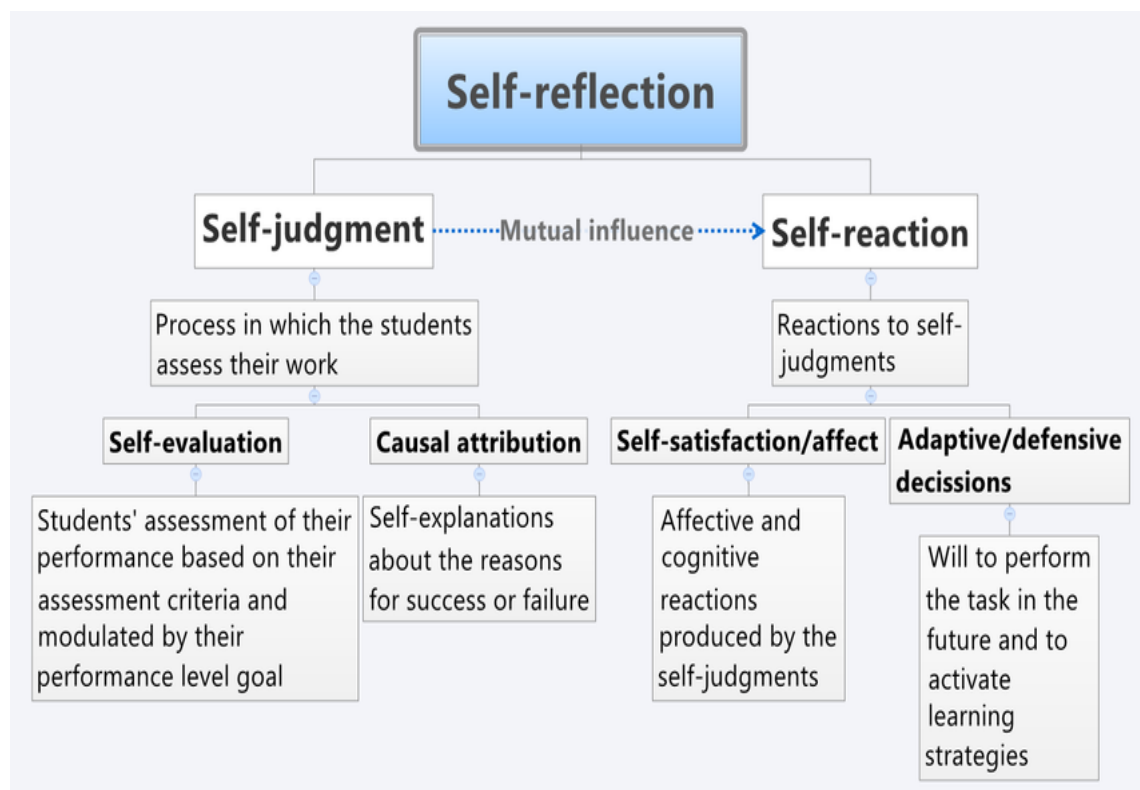


Figure 10: Self-reflection Phase (Panadero & Alonso-Tapia, 2014, p. 457)

The components of self-regulation previously discussed can be developed through self-assessment. For instance, in the forethought phase, students can use criteria to analyse the task and set goals accordingly. Thus, through self-assessment students can easily set measurable goals which reflect the criteria of the task and which can help them implement strategic plans. As a result, they can be intrinsically motivated to conduct the task, and they can develop a high-perceived sense of their ability and motivation.

In the performance phase, students can apply criteria to maintain focus on task demands, and this can increase their self-control. Moreover, they can self-monitor utilising their background strategic knowledge relying on the criteria presented in self-assessment activities or checklists they have. Therefore, they can obtain diagnostic information on the quality of their performance based on task criteria presented through self-assessment. Finally, in the self-reflection phase,

students can obtain an accurate judgement of the quality of their performance. The preciseness of their judgement can increase positive self-reactions such as self-efficacy beliefs and motivation.

In order to explain how students acquire self-regulatory competency, the Multi-Level model (Zimmerman, 2000; in Panadero, 2017) (Figure 11) was introduced. It demonstrates that self-regulation develops through observation, emulation, to self-control.

Level	Name	Description
1	Observation	Vicarious induction of a skill from a proficient model
2	Emulation ^a	Imitative performance of the general pattern or style of a model's skill with social assistance
3	Self-control	Independent display of the model's skill under structured conditions
4	Self-regulation	Adaptive use of skill across changing personal and environmental conditions

Figure 11: Multi-level Model (Adapted from Zimmerman, 2000, in Panadero, 2017, p. 6)

Other models of self-regulation, which integrate cognitive, metacognitive, behavioural, and motivational aspects, have been developed to elucidate the different mechanisms of self-regulation. The emergence of these models began when scholars started to make a distinction between SRL and metacognition (Panadero, 2017). The emergence of these models has led to expanding the conceptual framework of self-regulation and to understanding the conditions that lead to its development.

Boekaerts models of self-regulation (Figure 12 below) emphasise the role of goals in shaping self-regulation processes. Goals are considered “knowledge structures” that shape the purposes of self-regulation processes. Accordingly, self-regulation has three different purposes:

“(a) Expanding knowledge and skills... (b) preventing threat to the self and loss of resources so that one’s well-being is kept within reasonable bounds...and (c) protecting one’s commitments by using activities that re-route attention from the well-being pathway to the mastery pathway” (Boekaerts, 2011, pp. 410-411; in Panadero, 2017).

Boekaerts (1996b, in Panadero, 2017, p. 5) developed a structural model of self-regulation, which categorises self-regulation as cognitive and affective/motivational self-regulation. The two categories include the following components:

- (1) Domain-specific knowledge and skills, (2) cognitive strategies, (3) cognitive self-regulatory strategies, (4) motivational beliefs and theory of mind, (5) motivation strategies, and (6) motivational self-regulatory strategies.

From the perspective of this model and similar to Zimmerman and Moylan’s model (2009), Self-regulation involves the use of cognitive and motivational self-regulatory strategies. Cognitive self-regulation encompasses forming learning goals, devising plans, monitoring progress towards goals, and evaluating goal achievement. Cognitive self-regulation utilises cognitive strategies such as selective attention, decoding, rehearsal, elaboration, structuring, generating questions, activation of rules, and repair procedures (Boekaerts, 1996b; in Panadero, 2017).

These processes are maintained depending on motivational regulatory strategies; namely, creating a mental representation of intentions, linking behavioural intention to plans, and keeping goal progress relying on positive affective resources. Motivation strategies applied are forming a learning intention, managing cognitive processes to reduce negative emotions, prospective and retrospective attributions, effort avoidance, and resorting to social resources (ibid.). Motivational strategies are developed based on students’ metacognitive knowledge, which is a set of beliefs, attitudes, and values related to the task and to the ‘self’. They involve strategy and capacity beliefs and goal orientation (ibid.).

Boekaerts' model (1996b) suggests that self-regulated students start a learning task with domain-specific knowledge through different processes or what is called components of self-regulation. First, they process content domain envisaged in conceptual and procedural knowledge using cognitive strategies such as selective attention, repair, and decoding, elaborating, and activating rules.

These processes are directed by regulatory strategies such as designing plans, monitoring, and evaluating. Motivational strategies are employed in the same way regulatory strategies are used, because students resort to motivational beliefs such as strategy beliefs, capacity beliefs, and goal orientation during this phase. Consequently, they can develop motivation strategies such as effort avoidance and coping with processes to reduce negative emotions. The two systems: cognitive self-regulation and motivational self-regulation are directed by goals, domain-specific knowledge, and strategy use.

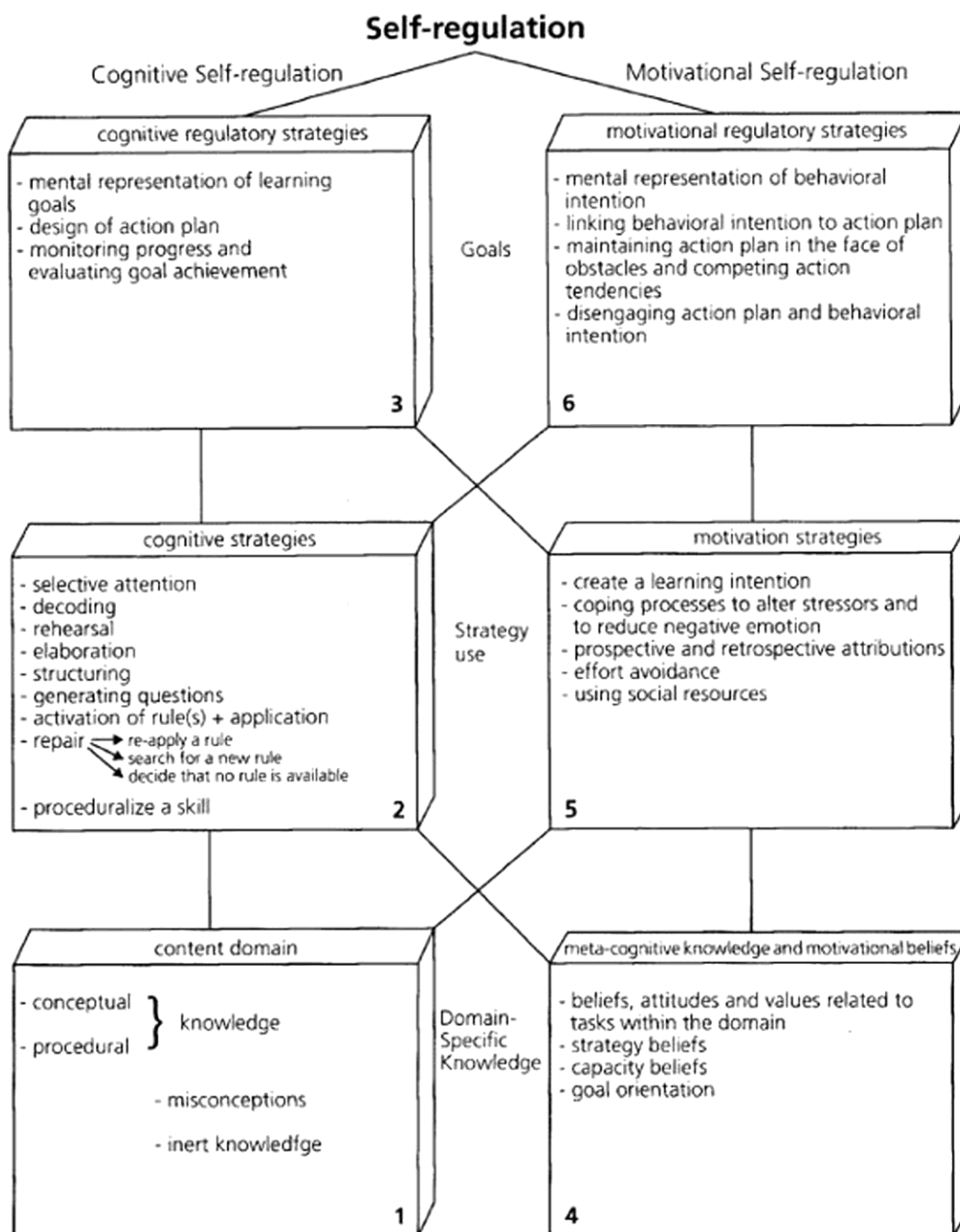


Figure 12: Six-component Model of SRL (Adapted from Boekaerts, 1996b; in Panadero, 2017, p. 7)

In order to explore other aspects of SRL, Boekaerts (1991, 1992; in Panadero, 2017) suggested the Adaptable Learning Model (Figure 13). This model is different from the Six-component Model of SRL, because it integrates other components such as the context, metacognitive knowledge (i.e., knowledge and

skills), and personal processes (i.e. self). Strategies included are learning and coping strategies. Then, the model was improved into the Dual Processing self-regulation model (Boekaerts & Cascallar, 2006) (Figure 13).

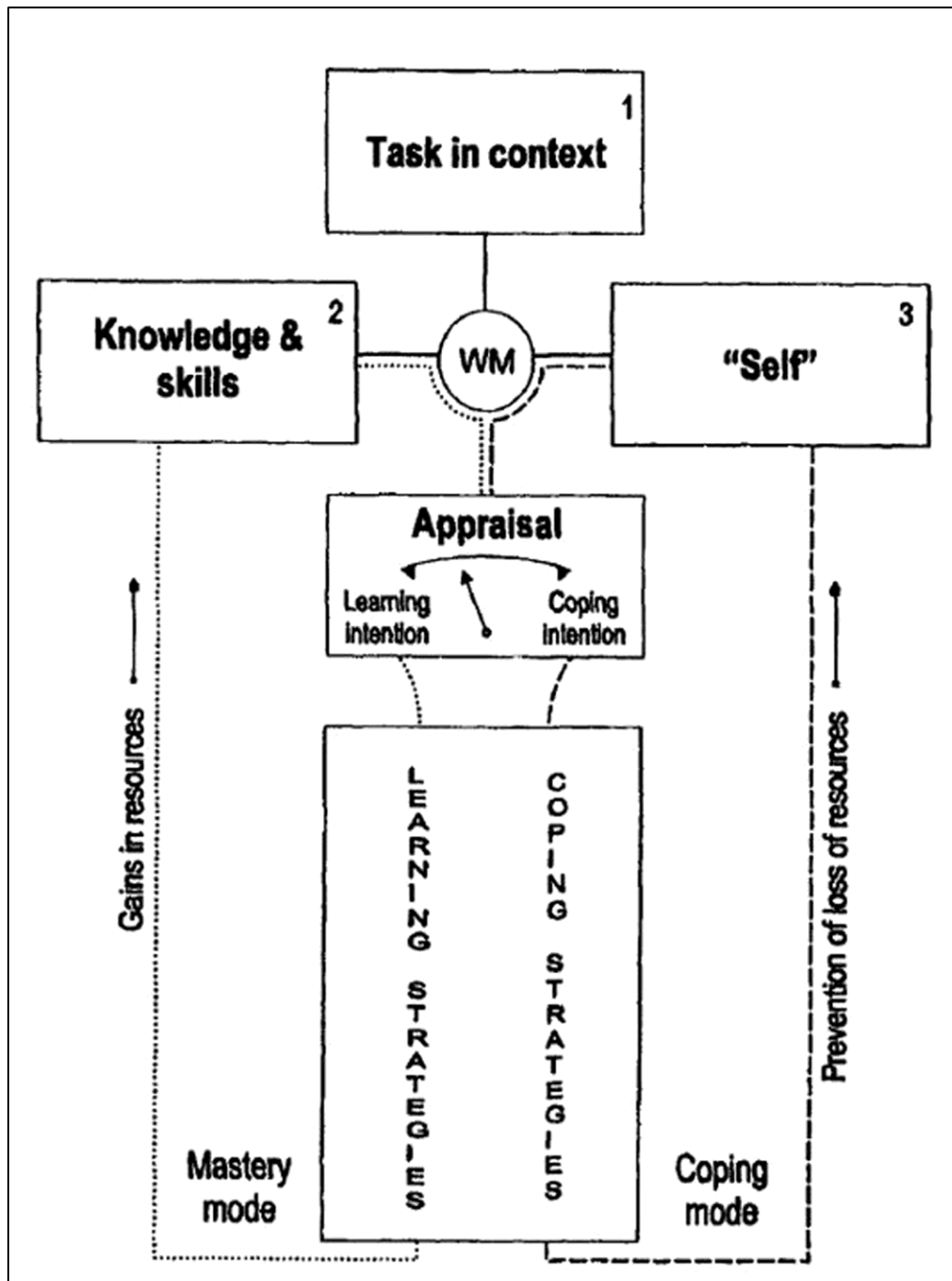


Figure 13: Model of Adaptable Learning (Adapted from Boekaerts, 1996a; in Panadero, 2017, p. 8)

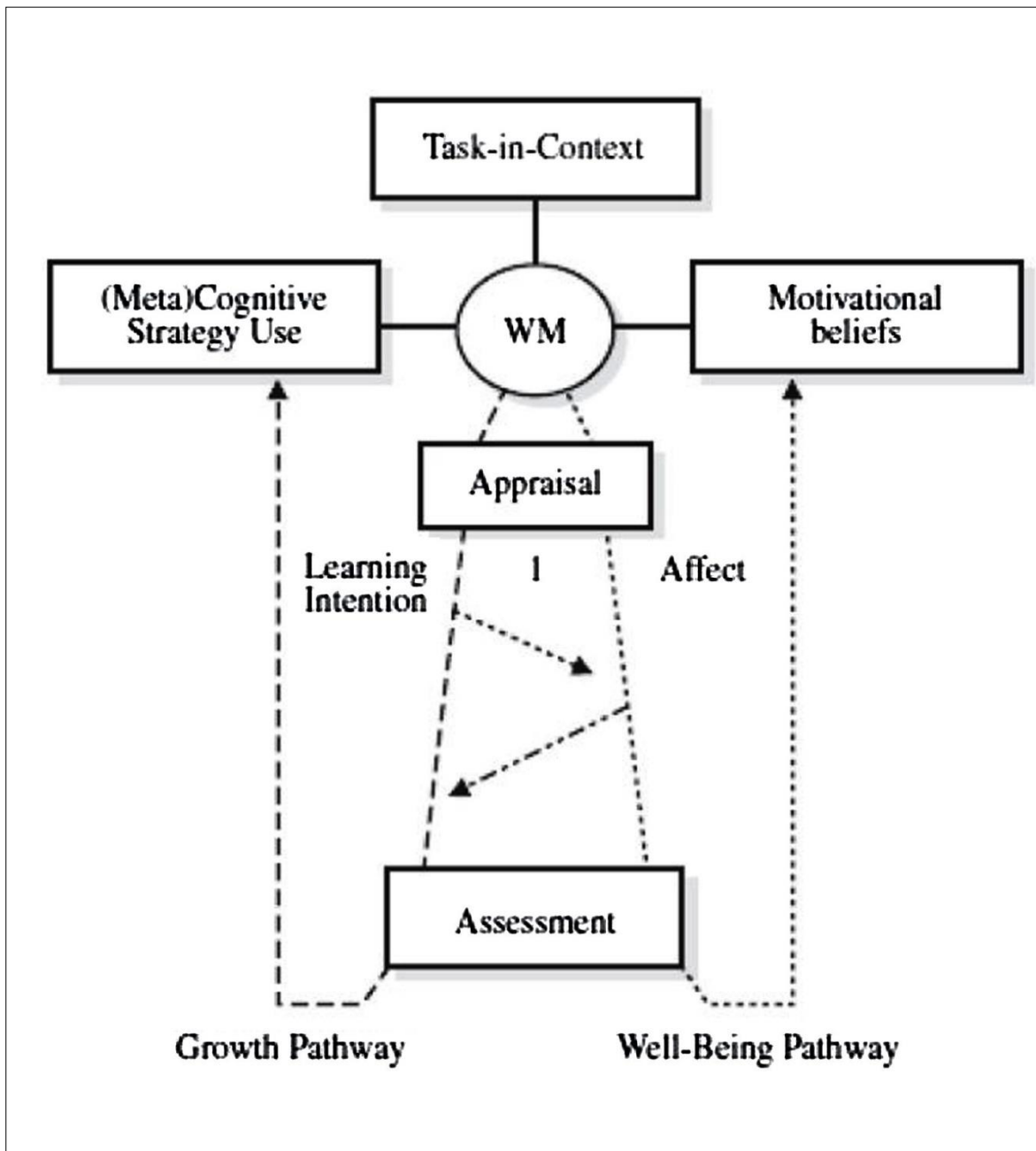


Figure 14: Dual Processing Self-regulation Model (Adapted from Boekaerts, 2011; in Panadero, 2017, p. 9)

To explain, The Dual Processing Self-regulation Model (Figure 14) advances two “pathways”, “the well-being pathway” and the “mastery/growth pathway”. The selection of a given pathway is determined by students’ appraisals and goals. To explain, students select the well-being pathway in response to their negative reactions towards a task. On the other hand, they select the mastery pathway when the task is in accordance with their goals and needs (Boekaerts, 2011; in Panadero, 2017).

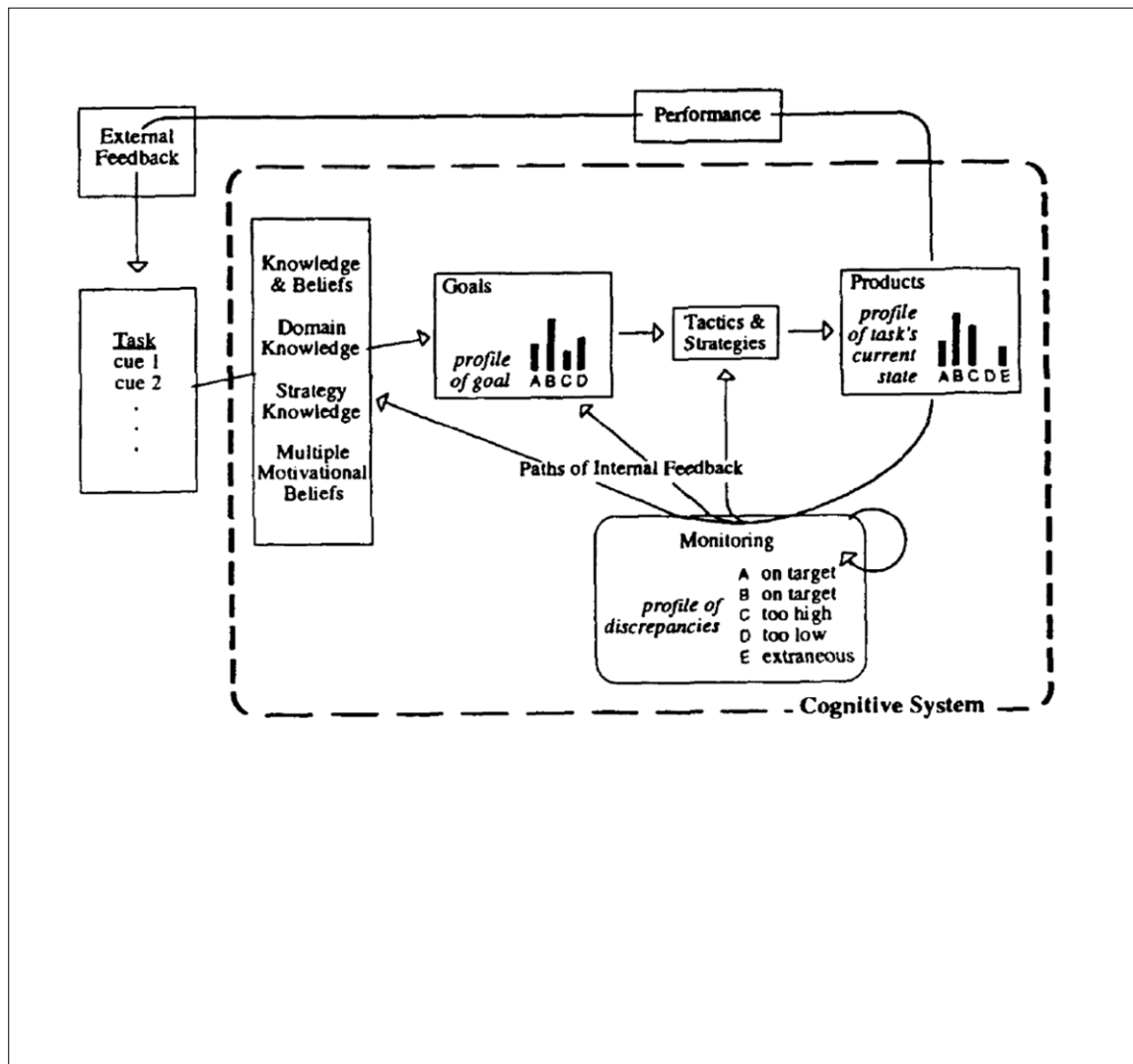


Figure 15: First Version of Winne’s SRL Model (Adapted from Winne, 1996; in Panadero, 2017, p. 11)

The earliest model of SRL developed by Winne and Hadwin (1998; in Panadero, 2017) (Figure 15) stresses the role of metacognition in self-regulated learning. SRL depends on self-monitoring and goal setting. Moreover, self-regulated learning has a strong reference to motivation. The model is based on Information Processing Theory (Winne, 2001; Greene & Azevedo, 2007; in Panadero, 2017) and views self-regulation as combination of information processing and information processed, and a feedback-driven process (Winne, 1995; in Panadero, 2017).

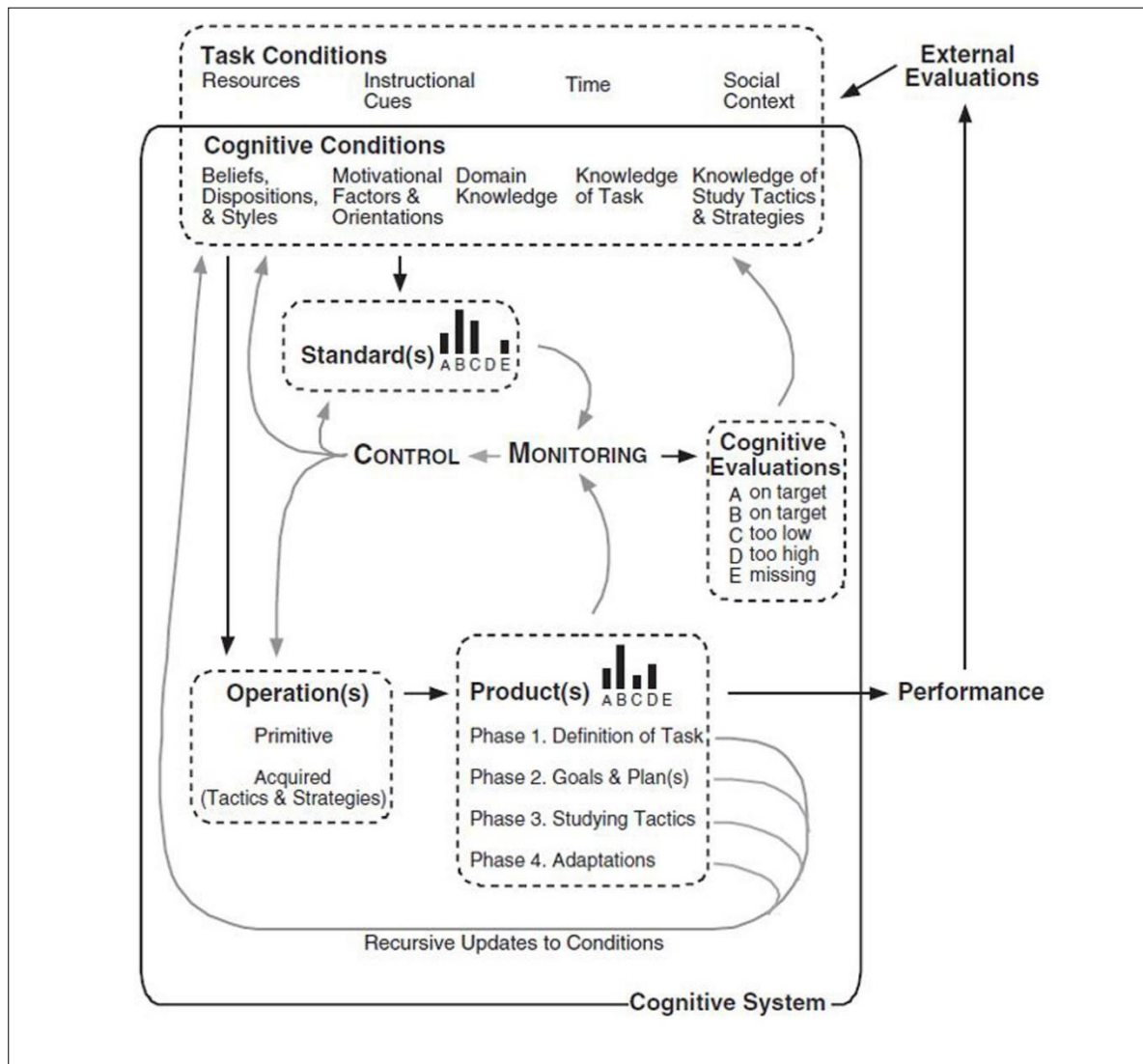


Figure 16: Current Version of Winne's SRL Model (Adapted from Winne & Hadwin, 2011; in Panadero, 2017, p. 12)

The revised model of SRL by Winne & Hadwin (2011) (Figure 16) views self-regulation as consisting of four open and recursive phases that are linked to a feedback loop. The four phases are task definition, goal setting and planning, enacting study tactics and strategies. Furthermore, SRL utilises five facets of tasks; namely, conditions (e.g., context, time), operations (i.e. cognitive processes, tactics, and strategies), products (i.e. information created), evaluations (i.e. standards of good work), and standards (i.e. criteria against which outcomes are monitored) (Winne & Hadwin, 2011; Greene & Azevedo, 2007; in Panadero, 2017).

TABLE 1 Phases and Areas for Self-Regulated Learning

Phases	Areas for regulation			
	Cognition	Motivation/affect	Behavior	Context
1. Forethought, planning, and activation	Target goal setting	Goal orientation adoption	[Time and effort planning]	[Perceptions of task]
	Prior content knowledge activation	Efficacy judgments	[Planning for self-observations of behavior]	[Perceptions of context]
	Metacognitive knowledge activation	Ease of learning judgements (EOLs); perceptions of task difficulty Task value activation Interest activation		
2. Monitoring	Metacognitive awareness and monitoring of cognition (FOKs, JOLs)	Awareness and monitoring of motivation and affect	Awareness and monitoring of effort, time use, need for help Self-observation of behavior	Monitoring changing task and context conditions
3. Control	Selection and adaptation of cognitive strategies for learning, thinking	Selection and adaptation of strategies for managing motivation and affect	Increase/decrease effort	Change or renegotiate task
			Persist, give up Help-seeking behavior	Change or leave context
4. Reaction and reflection	Cognitive judgments	Affective reactions	Choice behavior	Evaluation of task
	Attributions	Attributions		Evaluation of context

Figure 17: Pintrich’s SRL Model (Adapted from Pintrich, 2000; in Panadero, 2017, p. 14)

Pintrich’s model (Figure 17) is based on the assumption that self-regulation is a process that helps students to “monitor, control and regulate the (learning) context” (Pintrich, 2000, p. 466; in Panadero, 2017). SRL is composed of four phases: (1) forethought, planning and activation; (2) monitoring; (3) control; and (4) reaction and reflection (Pintrich, 2000; in Panadero, 2017). Four areas of self-regulation can be applied to each phase. These areas are cognition, motivation/affect, behaviour and context. Thus, SRL processes are prior content knowledge activation, efficacy judgments, and self-observations of behaviour (ibid.). Other components such as motivational and behavioural processes were included based on the work by Bandura (1977, 1986, 1997; in Panadero, 2017) and the triadic model by Zimmerman (1989; in Panadero, 2017).

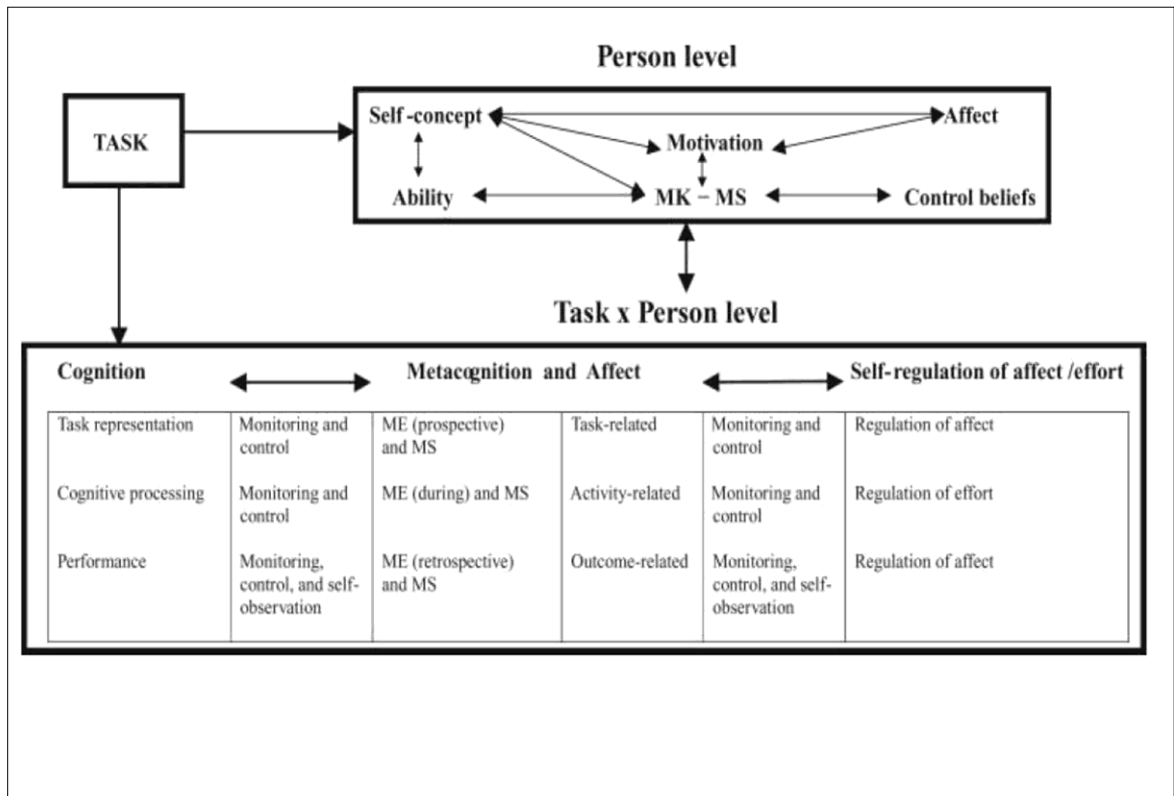


Figure 18: Metacognitive and Affective Model of Self-Regulated Learning Model (MASRL) (Adapted from Efklides, 2011; in Panadero, 2017, p. 14)

Efklides (2011; in Panadero, 2017) model (Figure 18) has a strong emphasis on metacognition and affective factors. It views self-regulation as an interaction of metacognition, motivation, and affect. The MASRL model categorizes SRL at two levels: the Person level or the macrolevel and the Task × Person Level or the microlevel. The Person level represents the traditional view of self-regulation. Efklides (2011, p. 10; in Panadero, 2017) states that “the person level represents a generalized level of SRL functioning. It is operative when one views a task resorting mainly on memory knowledge, skills, motivational and metacognitive beliefs, and affect”.

From to this view, self-regulated learning involves cognition, motivation, self-concept, affect, volition, metacognitive knowledge, and metacognitive skills (Panadero, 2011; in Panadero, 2017). Self-regulation from a person-level perspective depends on goal setting which “guides cognitive processing and the amount of effort” exerted on the task, and thus it can integrate “the interactions of

the person’s competences, self-concept in the task domain, motivation, and affect, vis-à-vis the perception of the task and its demands” (Efklides, 2011, p. 12; in Panadero, 2017).

The second level, the Task × Person level views self-regulation as a system of interactive elements such as goal setting and monitoring, which direct task processing. From this perspective, students’ goals can lead to generating a set of sub goals, which are aimed at addressing task requirements. This level is organized at four levels: cognition, metacognition, affect, regulation of affect and effort (Panadero, 2017).

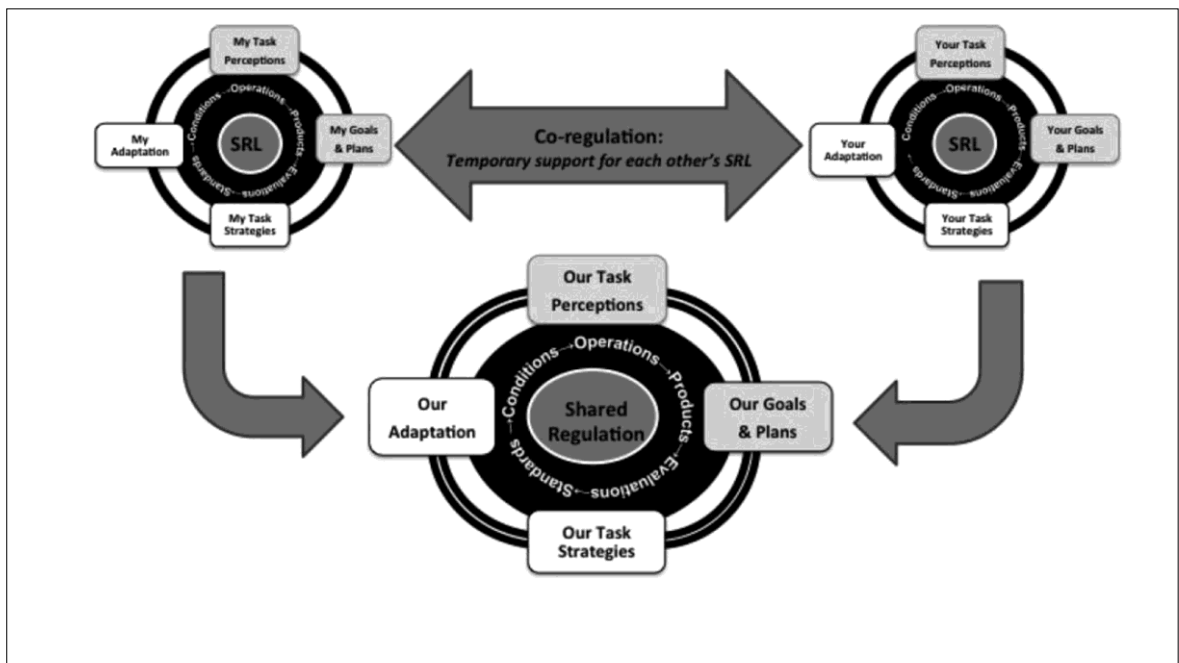


Figure 19: Socially Shared Regulated Learning Model (Adapted from Jarvela & Hadwin, 2013; in Panadero, 2017, p. 17).

The SSRL model suggests three modes of regulation related to collaborative settings: self-regulation (SRL), co-regulation (CoRL), and shared regulation (SSRL). SRL in collaborative settings is defined as “the individual learner’s regulatory actions (cognitive, metacognitive, motivational, emotional, and behavioural) that involve adapting to the interaction with the other group members” (Panadero, 2017, p. 16).

CoRL in collaboration “refers broadly to affordances and constraints stimulating the (student’s) appropriation of strategic planning, enactment, reflection, and adaptation (occurring when in interaction with other students or group members)” (Hadwin et al., in press, p. 5; in Panadero, 2017, p. 16).

SSRL in collaboration occurs when “deliberate, strategic and transactive planning, task enactment, reflection and adaptation” are processed altogether for task performance (Hadwin et al., in press, p. 5; in Panadero, 2017).

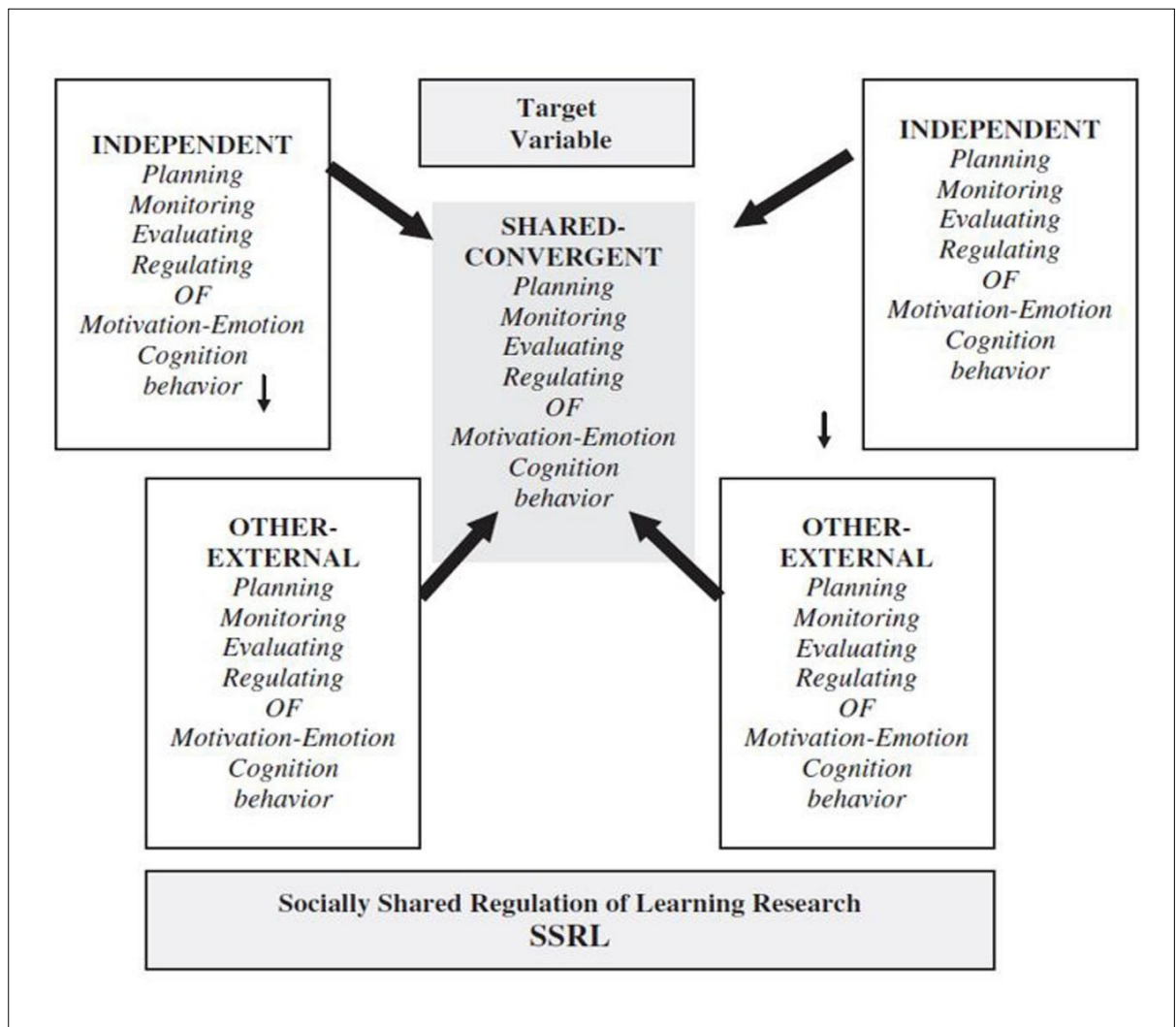


Figure 20: Socially Shared Regulated Learning Model 2 (Adapted from Hadwin et al., 2011; in Panadero, 2017, p. 18).

To conclude, the above-mentioned models agree on the conceptualization of self-regulation as a process involving metacognitive and affective processes. Metacognitive processes centre on goal setting, planning, and monitoring, while

affective processes centre on self-efficacy and motivation. These models can inform us of the mechanisms that self-assessment can gear when it is feedback-oriented.

The use of self-assessment as a self-regulation tool is connected with self-regulated learning theories, which identify students' ability to set goals, plan, monitor, and evaluate progress against criteria as the basis for strategic and affective metacognitive processes that form self-assessment, and that can be acquired automatically when students learn to monitor progress over goals and adjust strategy implementation. To elaborate on these processes, the following section is introduced covering different aspects related to metacognition.

1.3 Metacognitive Processes Involved in Self-assessment

In using self-assessment, students acquire the ability to understand and select a rationale for taking action (i.e. .making judgments), the capacity to set goals or plans, the capacity to select strategies or techniques for reaching goals even in the face of obstacles, and the automaticity to monitor progress over goals, and to adjust strategy implementation.

Metacognition is a process of thinking about one's own thinking (Flavell, 1979). This entails "awareness and control of one's learning" (Baker & Brown, 1984, in Hartman, 2001, p. 33). In this vein, it involves self-direction and self-regulation. Metacognition is also defined as "knowledge and cognition about cognitive phenomena" (Flavell, 1979, p. 906). Also defined as "knowledge of one's cognitive processes and products" (ibid.), metacognition is "an awareness or consciousness of whether or not one knows something" (ibid.). On the other hand, Hartman (2001) defines metacognition as "internal, 'executive' processes that control cognitive processes. They enable one to plan monitor, and evaluate performance throughout the execution of a task" (Hartman, 2001, p. 33). Metacognitive processes are conscious procedures used to maintain effective performance of a task by diagnosing breakdowns, solving recurring problems, and ultimately assessing the success of strategies used.

Metacognition encompasses task analysis, activation of background knowledge, increased awareness of feedback, and effective use of feedback (Hartman, 2001). It involves ability to use knowledge strategically, ability to monitor and evaluate progress (Gourgey, 2001). Metacognition encompasses monitoring, regulation, orchestration (i.e. checking, planning, selecting, inferring), self-interrogation, introspection, interpretation and ongoing experience (Flavell & Wellman, 1979; in Hartman, 2001).

Flavell (1979) referred to metacognition as ‘cognitive monitoring’, since it is a process of directing cognition and cognitive tasks. Cognitive monitoring depends on the interplay between metacognitive knowledge, metacognitive experiences, goals, and strategies. Flavell (1979, p. 18) provided an exhaustive definition of cognitive monitoring that is worth considering. It was defined as an

“awareness of how one learns; awareness of knowledge of how to use available information to achieve a goal; ability to judge the cognitive demands of a particular task; knowledge of what strategies to use for what purposes; and assessment of one’s progress both during and after performance”.

Furthermore, Flavell (1979) distinguished between three components of metacognition: metacognitive knowledge, metacognitive experiences, and self-regulation skills. Metacognitive knowledge refers to what students know about their learning, and learning in general (Flavell, 1979). This encompasses their beliefs about the factors that can enhance their learning (ibid.). It can be acquired unconsciously through learning experiences that result from reflection, through self-regulation (i.e. being involved in planning, self-monitoring, and self-evaluating outcomes), or consciously through explicit instruction (Wenden, 1999). Metacognitive knowledge is knowledge acquired about one’s cognitive processes. Flavell (1979, p. 907) defined it as “knowledge or beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive enterprise”. He identified its three interactive components:

- Person or self: it is knowledge of intra-individual and inter-individual differences. Intra-individual differences encompass knowledge of one's learning styles, abilities, competences, and knowledge of types of understanding. Inter-individual differences are about students' knowledge of and beliefs about other people's competences and learning styles.
- Task knowledge: it is knowledge about a given task and its components as well as knowledge of the information one encounters and ability to attend to its elements. Task category also refers to knowledge of task demands and goals.
- Strategy knowledge: it is students' knowledge of the strategies that can be used to perform the task effectively and to address its goals.

Metacognitive experiences refer to “conscious cognitive or affective experiences that pertain to any intellectual enterprise” (Flavell, 1979, p. 906). It is an awareness of breakdowns or feelings of inability to understand or perform a task. It also refers to feelings available to the student during performance of a task on the state of progress, or awareness of how the task is proceeding. Metacognitive experiences may trigger self-evaluation during task performance and can lead to reflection and problem solving.

Moreover, metacognitive experiences affect metacognitive knowledge (Flavell, 1979). The more students undergo metacognitive experiences, the more they construct or refine metacognitive knowledge. Metacognitive experiences involve ability to recognise or realise breakdowns in performance (Pintrich, 2002). Realising breakdowns and strengths can lead to reflection and activation of problem-solving processes; and thus adaptation of strategies, which can develop metacognitive knowledge (ibid.). Metacognitive experiences are also related to self-regulation skills, because realising breakdowns leads to activation of self-monitoring necessary for diagnosis. This calls for other self-regulation skills such as planning actions and selecting strategies, monitoring the use of the strategies, and evaluating effectiveness of strategies.

Referring to Flavell's definition, cognitive monitoring functions revolve round interactive stages; namely, metacognitive knowledge, metacognitive experiences, and self-regulation skills. When students perform a task and face a difficulty, they go through metacognitive experiences. Metacognitive experiences can be cognitive (i.e. awareness of inability to understand or to perform), or affective (i.e. feelings of apprehension, anxiety, or puzzlement). This can result in a process of reflection, which occurs in order to solve problems.

As part of reflection, students resort to problem solving, and they can use their self-regulation skills relying on their metacognitive knowledge; i.e., what they know about themselves as students (i.e. their learning styles and strategies), what they know about the task (i.e. its demands), and what they know about the appropriate strategies for the task. This implies that they can draw upon metacognitive knowledge to monitor task performance. They use task knowledge to analyse task demands, and they resort to their knowledge of strategies to select the appropriate ones that work better for the performance of the task.

Recently, some definitions conceptualised metacognition as a self-regulation skill (e.g. Hartman, 2001; Gourgey, 2001; Schraw, 2001). In this regard, it was defined as "a set of executive control processes which guide the flow of information through the mind and regulate cognition" (Hartman, 2001, p. 33). It involves the use of control processes, which are planning, monitoring, and evaluating.

From this perspective, metacognition has two components, which are awareness of one's thinking processes, or metacognitive knowledge and control one's thinking processes, or self-regulation skills (Hartman, 2001). Metacognitive knowledge includes declarative, procedural, and conditional knowledge (Hartman, 2001; Schraw, 2001; Gourgey, 2001). It is important because it can direct students' regulatory skills.

First, declarative knowledge refers to what students know in relation to memory and learning in general. It is knowledge of one's learning and the factors

that affect it positively or negatively. It is also knowledge about other students' learning; i.e., their learning strengths and weaknesses (Hartman, 2001; Schraw, 2001; Gourgey, 2001).

Second, procedural knowledge concerns knowledge of task execution processes (Hartman, 2001). In other words, it is about knowing the demands and goals of a task. It is also knowledge of the strategies needed to execute a task. It guides the selection and implementation of strategies (Pressley, Borkowski, and Schneider, 1987, in Schraw, 2001). It is also knowledge of general strategies including cognitive and metacognitive ones such as planning, monitoring, and evaluating (Schraw & Moshman, 1995).

Third, conditional knowledge refers to knowledge of why and how to use strategies. It is knowing when and why to use declarative and procedural knowledge (Garner, 1990; in Schraw, 2001). It helps to sequence strategies according to task demands. Nevertheless, metacognitive knowledge is only knowledge and does not concern actual execution (Pintrich, 2002) Regulation of cognition involves planning, monitoring, and evaluating which enable students to control their performance (Schraw & Moshman, 1995). It is the ability to execute and control these processes (Schraw, 2001). It includes skills such as problem solving.

Regulation of cognition can improve performance, since it enhances reflection, strategy use, sequencing, control, and awareness of comprehension breakdowns. Planning is the "selection of appropriate strategies and allocation of resources that affect performance" (Schraw, 2001, p. 354). Monitoring is an "awareness of comprehension and task performance" (ibid, p. 354). It is the "ability to engage in self-testing while learning" (ibid.). Similarly, it is a process of self-observation. Evaluation is "appraising the products and regulatory processes of one's learning" (ibid., p. 355). It encompasses re-evaluating goals and conclusions. It is a process of appraising the effectiveness of the strategies used which can result in re-planning.

There is a relationship between metacognitive knowledge and self-regulation skills (Wenden 1999). Self-regulation skills including planning, monitoring, and evaluating can function automatically when a student draws on self, task, and strategy knowledge. Metacognitive knowledge provides a form of feedback necessary for self-regulation. This feedback encompasses all information related to one's performance (Hattie & Timperley, 2007; in Hacker, Keener, & Kircher, 2009).

Hartman (2001) conceptualised metacognition in two categories: (a) executive management strategies for planning, monitoring, evaluating, and revising one's thinking processes and products, and (b) strategic knowledge, which is information, strategies, or skills one has (i.e. declarative knowledge), when and why to use them (i.e. conditional knowledge) and how to use them (i.e. procedural knowledge).

According to Hartman (2001), metacognition functions through self-questioning. Self-questioning is part of reflective thinking and leads to problem-solving processes. Questioning refers to the internal discussion metacognitive students experience while solving a problem. Throughout task performance, questioning can guide the application of regulatory skills, and can improve students' ability to apply metacognitive knowledge and regulation skills to new situations. It can also enhance positive attitudes and motivation envisaged in metacognitive experiences, due to improved performance.

Another component of metacognition, which is the result of questioning and using regulatory skills, is problem solving. Problem-solving involves recognising a problem, developing a mental representation, developing a solution strategy, organising problem-schemas, allocating strategies to solve the problem, monitoring strategies, and evaluating the attainment of goals (Pretz et al., 2003, in Heine, 2010). Problem-solving processes are activated during a metacognitive enterprise when breakdowns in performance occur. Throughout task performance, a problem can be identified along with its components. This can be facilitated by metacognitive knowledge the student has, especially task knowledge. Then, goals

can be set to meet the requirements of the task envisaged through task knowledge, and a solution can be developed by selecting appropriate strategies.

This initial phase can be facilitated by conditional knowledge, which gives a rationale for the selection of a specific strategy. Relationship between a particular task situation and another similar task situation can be developed during planning and monitoring phases in order to facilitate strategy selection. The strategies selected are then monitored for efficacy through monitoring phase. Finally, they are evaluated for accuracy and appropriateness for the task through evaluation phase. This process can shape the construction of metacognitive knowledge base. Consequently, through problem-solving processes, both self-regulation skills and metacognitive knowledge become activated.

The conceptualisation of metacognition discussed above represents a traditional view of strategic learning, which was viewed as a metacognitive process. This means that metacognition encompasses metacognitive knowledge, metacognitive experiences, and self-regulation skills. Contemporary theories view metacognition as a component of self-regulation. The latter encompasses metacognition or cognition control, behaviour control, and motivation control (Panadero & Alonso-Tapia, 2014).

Likewise, Haukas (2018) referred to metacognition as a key characteristic of self-assessment, which promotes monitoring and control over a given task. Self-assessment helps students replicate the strategies and techniques they developed. In this sense, it can increase their employability of metacognitive strategies and goal setting, and thus it can build their metacognitive knowledge. Ultimately, this can have a direct effect on their motivation and on shaping their capacity for self-regulation.

Particularly, when self-assessment is used for formative purposes rather than summative purposes, and when it is devised following criteria of quality work, one advantage can be the increase of metacognitive awareness which is sufficient

to inform students' goal setting and readiness for continuous monitoring of performance and assessment of the final product.

Knowing that writing depends on metacognitive processes and is likely to be influenced by affective factors, the use of criteria-based self-assessment activities can help students manipulate metacognitive knowledge of the writing process and help them to engage in a process of implementing metacognitive strategies through self-monitoring. Ultimately, this can affect the quality of their written product, and it can shape their attitudes towards writing. In the following section, the role that metacognition plays in developing writing strategies is accounted for in relation to metacognitive monitoring and metacognitive control. Moreover, a number of research studies are reviewed to understand the effect of self-assessment on writing strategies knowing that self-assessment functions through metacognitive processing.

1.3.1 The Role of Metacognition in Developing Writing Strategies

In relation to writing strategies, declarative knowledge refers to knowledge of writing strategies:

- Pre-writing strategies: planning and goal setting
- While-writing strategies: monitoring and reviewing
- Post-writing strategies: evaluating and revising

Procedural knowledge is about knowing how to use these strategies. Conditional knowledge refers to knowledge of when and why to use metacognitive/cognitive strategies. Writing strategies are enabled through metacognitive monitoring and metacognitive control. Metacognitive monitoring enables monitoring strategies; namely, reading, re-reading, reflecting, and reviewing. These strategies are used to monitor the writing process and the quality of written production.

Metacognitive control enables editing, drafting, idea generation, word production, translation, and revision strategies. These are responsible for the actual production of meaning (Hacker, Keener, & Kircher, 2009). Metacognitive

monitoring and control can be used explicitly to help the writer direct the writing process and assess the attainment of writing goals. Monitoring and control as metacognitive processes can be altered based on change in writer's goals (ibid.).

Monitoring and control are used continuously in the writing process, and can be interrupted by breakdowns in performance or when the goals of writing are not met. Writers solve the problem by monitoring (i.e. reading, re-reading, or reflecting on what is being written). Then, they look for new ideas, rewrite (using notes), edit, and finally revise until they obtain new ideas, which meet their communicative goals.

Writing performance depends on the activation of metacognition, because it is the source of two types of knowledge, (1) product knowledge, which refers to knowledge of text types, knowledge of linguistic structures, and knowledge of text organisation; and (2) process knowledge, which is knowledge of how to set goals, evaluate progress, and make adjustments during performance (Stiko, 1998). Process knowledge steers process cognitions, which are beliefs about one's competence, motivation, and other affects (ibid.). These processes are directed by metacognitive monitoring and control, which are dealt within the following section.

Knowing that metacognition and self-assessment are two sides of the same coin, the following section is a discussion of studies on the effect of self-assessment on the development of writing strategies. Moreover, it is acknowledged that theory cannot be understood outside real contexts and that research studies reflect systematic conceptualisation of theory. These studies form part of the theoretical and practical base on metacognition and the development of writing strategies.

1.3.1.1 Using Self-assessment to Develop Revision Strategies

Elgadal (2017) investigated the effect of self-assessment on the use of revision strategies in writing. In this regard, self-assessment was defined as a process of reviewing and comparing performance using criteria or standards in

order to improve it (Bickers, 1988; in Elgadal, 2017). On the other hand, revision was defined as “an ongoing, recursive process where changes might affect meaning” (Fitzgerald, 1988; in Elgadal, 2017, p. 7). It encompasses cognitive strategies such as deletion, addition, correction, substitution, editing, and proofreading (ibid.).

The researcher’s motivation to conduct the study was justified on the ground that teacher-centred forms of assessment are prevalent in the context under study. Moreover, these assessment methods are claimed to be traditional by focusing on examination and summative assessment. Furthermore, it was viewed that Libyan students have difficulties writing in English, and this had a negative impact on their motivation towards English writing at university.

In addition, the researcher stressed the need to improve students’ writing proficiency, which remains to be underdeveloped. Therefore, she sees that the criteria that teachers use to assess students’ writing need to be shared with the students in order to involve them in evaluating their writing critically and analytically. This can result in nullifying their negative attitudes towards writing and towards teacher’s evaluation, but most importantly, it can lead to developing their writing ability.

The aim of the study was to investigate the effect of self-assessment for revising on the improvement of the quality of writing strategies and writing product. This argument relied on the view that the ability to regulate the revision stage of writing is critical, and can shape the quality of the final product. To respond to this view, the following research question was advanced: Do inexperienced EFL students who self-assess their writing engage in revision more than those who do not self-assess?

The study was conducted with a sample of 100 fourth-year university EFL students enrolled in the English Department, Zawya University, Libya. The participants were from the same language background. The study involved the implementation of self-assessment sheets as part of expository writing for a period

of two months. Self-assessment was used at the revision stage of writing. The self-assessment sheets included criteria such as content, organisation, language, and mechanics. The self-assessment sheets were used to evaluate three written compositions. They were followed by post-study feedback, which was used to elicit students' opinion regarding how self-assessment helped them to revise their writing.

The writing assignments had different topics. In the first writing assignment, the students were asked to write a paragraph on 'the effects of smoking'. The second writing assignment asked the students to develop the topic "differences between living in a big city and a small town". For this writing assignment, the participants were asked to write two drafts and to use self-assessment for revision.

The post-study tool included items, which helped the researcher explore students' opinion on the way self-assessment helped them to improve the use of revision strategies. Two writing assignments, self-assessment sheets and a post-study feedback were collected as data for the study.

The analysis of data involved quantitative and qualitative data analysis. The drafts collected from the writing assignment were qualitatively analysed and compared in terms of quality of changes applied. Using Faigley & Witte's (1981; in Elgadal, 2017) taxonomy and Sommers (1980; in Elgadal, 2017) revision operations, revision operations analysed were deletion, substitution, addition, and reordering. This enabled the researcher to determine whether the participants applied revision strategies. Revision was classified into two categories, surface revisions and meaning revisions. Quantitatively, the researcher used the drafts to determine the number of participants who used revision strategies. Moreover, the linguistic level of revision (i.e. word, phrase, sentence, and organisation) was also analysed.

In this research, self-assessment was implemented as a revision tool and involved language-related criteria. Nevertheless, criteria related to revision strategies were not included, as they could have facilitated the revision process for

the participants. A major strength of this study is the use of revision models to analyse the drafts and to compare them in terms of strategy use. This method provided valid data on participants' use of revision strategies.

The findings of the study supported the thesis statement and were in line with theoretical frameworks, which advance the role of self-assessment in the development of self-regulated learning (e.g. Panadero & Alonso-Tapia, 2014). To sum up, it was found that the experimental group used more revisions than the control group. It was argued that the criteria helped the students revise their writing by implementing a set of strategies to make surface and meaning revisions at the level of content, organisation, and language. It can be said that the study's findings supported theories on the effect of self-assessment to the development of metacognitive strategies.

1.3.1.2 Using Self-assessment to Develop Planning, Drafting, Revising, & Editing Strategies

Heidarian (2016) conducted a study to investigate whether self-assessment can develop students' use of writing strategies. The study holds that writing should be seen from a process-oriented angle, and highlights the advantages of authentic assessment tools such as self-assessment. The researcher demonstrated logical reasons in response to why to use self-assessment in writing courses. In response to this, the researcher raised the inadequacy of summative assessment in aiding students to recognise the stages of the writing process, and put to the front the role of self-assessment in developing their metacognitive competency.

The objective of the study was to see whether using self-assessment in writing classes could help students develop the use of writing strategies. This objective stems from a need to question the traditional approaches to teaching in Iranian educational systems, which are teacher-centred. In this context, the students are evaluated on the final product, while little attention is paid to writing processes. Moreover, teachers use summative assessment methods, which focus on assigning scores.

The researcher sees the significance of the study in different ways. First, the study is noteworthy for students, because it can draw their attention to the role of self-assessment in developing their ability to use writing strategies by diagnosing their strengths and weaknesses. In relation to writing strategies, the researcher formulated the following research question: Are there statistically significant differences between the mean scores of experimental group and control group on writing performance after the treatment?

Writing strategies were referred to through an articulation of the writing process, which was seen a process which “emphasises the writer as an independent producer of texts” (Hyland, 2003, p. 10). This suggests the dynamic nature of writing, a process which “involves composing, while implies the ability to either tell or retell pieces of information in the form of narratives or description, or to transform information to new texts, as in composing or argumentative writing” (Myles, 2002, p. 1).

The literature covered the developmental trajectory of assessment and then introduced self-assessment in terms of its characteristics, principles, advantages, and challenges to its implementation in relation to writing. Nevertheless, the review was still inadequate because it did not consider the psychological mechanisms of self-assessment. This necessitates reviewing metacognitive processes.

The sample was composed of 48 female intermediate students grouped in control (N=23) and experimental groups (N=25). The control group used traditional method; i.e., teacher’s evaluation while the experimental group used self-assessment. The study was strengthened by the use of a random sample, which increased external validity.

The data were collected using a self-reporting questionnaire on writing processes (SRQ), which consisted of 25 items organised in four writing processes; namely, planning, drafting, revising, and editing. Data were analysed using independent samples t-test and paired t-test at $\alpha=0.05$. For a period of 8 weeks, the treatment implemented consisted of using a self-report questionnaire and an

analytic scoring rubric that participants used to assess their use of writing strategies and evaluate the paragraphs they have written respectively.

The results indicated significant difference between the control and the experimental groups in terms of writing performance described in terms of using planning, drafting, revising, and editing strategies. In relation to these findings, we can refer to the role of self-assessment as a tool, which enhances reflection, problem-solving, and self-monitoring skills (Raaijmakers, Baars, Pass, et al., 2019). We can also refer to the nature of self-assessment as a metacognitive tool, which boosts self-regulation processes, which are responsible for enhancing the use of strategies.

1.3.2 The Role of Metacognition in Developing Writing Ability

The role of metacognition in developing writing ability involves interworking between writing strategies, which are conscious strategies and strategic competence (i.e. psycholinguistic processes). These two processes can be used simultaneously. To illustrate, a writer can notice inaccuracy of meaning through assessment, which is a psycholinguistic process; s/he can re-read through monitoring, which is metacognitive strategy to re-generate meaning through planning as a psycholinguistic process.

It is argued that metacognition, including its two components metacognitive knowledge and metacognitive strategies, is crucial for the development of writing skills (Harris, Santangelo, & Graham, 2010). For instance, the models of writing process developed by Flower & Hayes (1980), Bereiter & Scardamalia (1987; in Weigle, 2002), and Zimmerman & Risemberg (1997) emphasise metacognitive processes involved in the writing process. These models integrate the ‘monitor’, the repository of problem-solving processes necessary to monitor the accuracy of language items selected whether grammatical, organisational, or pragmatic.

Metacognition helps students apply their knowledge about writing, including knowledge of text structure and type, purpose, and audience, and to apply and regulate strategies (Raphael, Englert, & Kirschnen, 1989). Metacognitive knowledge of writing encompasses knowledge of the cognitive

processes in writing including declarative, procedural, and conditional knowledge of writing as well as awareness of one's own cognition (i.e. what one knows in relation to writing).

Firstly, declarative knowledge involves knowledge of purpose of writing, topic, needs of audience, linguistic structures, knowledge of writing processes (i.e. planning, drafting, and revising) (Harris, Santangelo, & Graham, 2000). For example, declarative knowledge of paragraph writing is about knowledge of paragraph structure.

Secondly, procedural knowledge is “the repertoire of behaviour available from which the learner selects the ones best able to help reach a particular goal” (Raphael, et al; 1989, 347; in Harris, Santangelo, & Graham, 2010). It is about knowing how to use declarative knowledge. For instance, knowing how to develop a topic in a paragraph, how to use language to meet the needs of the audience, and knowing how to write complete sentences (Harris, Santangelo, & Graham, 2000).

Thirdly, conditional knowledge is knowledge of why, when and where to use declarative and procedural knowledge (Hartman, 2001; Schraw, 2001). It helps writers analyse a writing task; i.e., know its demands, elements, and goals. For instance, conditional knowledge involves knowing why to vary structures according to audience, why and when to follow different paragraph structures such as comparison/contrast, cause/effect...etc. (Harris, Santangelo, & Graham, 2000).

The second component, metacognitive strategies, involves consciously planning, monitoring, and evaluating cognitive processes in writing. Self-regulation of writing refers to “self-initiated thoughts, feelings, and actions that writers use to attain various literacy goals” (Zimmerman & Riesemberg, 1997, p. 76). Applied to writing performance, self-regulation is responsible for steering writing processes. It refers to the use of metacognitive strategies. It is the basis for generating and coordinating action between two processes: metacognitive monitoring and metacognitive control, which provide the working basis for metacognitive strategies in writing such as planning, translating, and revising.

Metacognitive monitoring refers to an awareness of writing cognitive processes and ability to monitor the production of language items (Hacker, Keener, & Kircher, 2009). Metacognitive control refers to ability to control writing cognitive processes and regulate the production of language items (ibid.). These components of metacognition are implied in Hayes & Flower model of writing (Hayes & Flower, 1980). For instance, they referred to the ‘monitor’ which is a self-regulatory component responsible for the functioning of different language operations such as showing relationship between two ideas in a sentence, showing relationship between ideas in a text, using prepositions, using grammatical structure, using words, considering the context of language use...etc.

The monitor organises the flow of cognitive processes responsible for language production. Drawing on Bachman & Palmer (1996), metacognitive monitoring and control represent a set of executive management processes responsible for the production and organisation of language items. These processes embody metacognitive processes representing strategic competence:

- a) Goal setting: deciding which item (i.e. idea, word, preposition, or organisation pattern) to use in relation to the language use situation, and retrieve it from long-term memory.
- b) Assessing: analysing language use situation, scrutinising language items, and assessing their conformity to language use situation and to writer’s communicative goal.
- c) Planning: deciding how to use language items and organising them.

Applied to writing performance, metacognitive monitoring is awareness of the following processes: planning, translating, and reviewing strategies, which help writers ensure conformance between the meaning produced and author’s goals (Hacker, Keener, & Kircher, 2009). Conformance can occur when monitoring is accurate.

Metacognitive control is applied to regulate planning, translating, and reviewing processes (Hacker, Keener, & Kircher, 2009). It helps writers to alternate between cognitive processes depending on the success of language items

selected. For instance, writers control the accuracy of a conjunction; and if it is assessed as inaccurate for communicating intended meaning, they can re-generate other conjunctions or plan an idea anew.

A monitor coordinates these two functions, namely, monitoring and control. The monitor is responsible for activating these metacognitive processes, and consequently can facilitate the flow of writing processes; namely, planning, translating, and reviewing and can make them “manageable” and “recursive” (Bruer, 1993; in Hacker, Keener, & Kircher, 2009, p. 157).

Metacognitive monitoring and control function based on a monitor (*ibid.*). The monitor is crucial for the coordination of writing processes (Nystrand, 1989; in Hacker, Keener, & Kircher, 2009). Metacognitive monitoring and control provide writers with the necessary steps to produce, because they help them “monitor the progress of their thinking and writing” (*ibid.*, p. 157). Moreover, metacognitive monitoring and control are responsible for activating problem-solving processes. The execution of metacognitive control is facilitated through activating task schemas (*ibid.*). A task schema is metacognitive knowledge of a task that a writer has developed through metacognitive experiences, which accrue from solving or doing similar tasks.

Furthermore, metacognitive control and monitoring function continuously during the writing process, and can be interrupted by breakdowns in meaning which indicate non-conformance of the meaning produced with writing goals. Non-conformance engenders metacognitive experiences, which make writers activate metacognitive monitoring and control. Metacognitive control can be exerted for “diagnosing the breakdowns in meaning, reviewing what has been written, generating new ideas, and rewriting to produce a new text that is in better conformance with the writer’s purposes” (Hacker, Keener, & Kircher, 2009, p. 158). The writing process continues with monitoring processes such as reviewing, re-reading, and reflecting until other breakdowns in meaning production occur.

It can be argued that metacognitive control and metacognitive monitoring function through problem solving: when writers experience a breakdown, they allocate the necessary strategies to fix meaning production. In part, they use control strategies such as editing, drafting, generating ideas, and producing words. To assess if their production is in conformance with the goals they established, they use monitoring strategies including reading, re-reading, reflecting, and reviewing. This process continues until another breakdown occurs.

Monitoring and control are used to evaluate higher-level goals such as meaning production and paragraph organisation, and also lower-level goals such as meaning production within sentences, word choice, sentence generation, and grammatical structures. These two processes make use of writer's language knowledge stored in long-term memory (Carver & Scheir, 1991; in Hacker, Keener, & Kircher, 2009).

The following section presents studies on the effect of self-assessment on writing ability. The studies might well help us to understand the role of metacognition, envisaged in the use of self-assessment, in developing writing ability. Self-assessment practices featured the use of scoring rubrics and checklists, which were administered as part of paragraph writing tasks.

1.3.2.1 Using Rubrics to Improve Writing Ability

Fahimi & Rahimi (2015) investigated the impact of self-assessment on writing ability. The aim was set in response to the prevalence of traditional assessment methods used in the context under study and to the importance of writing skill in academic contexts. They maintain that self-assessment has a self-regulation potential. To consolidate this statement, they relied on previous theories (e.g. Falchikov & Boud, 1989; Zimmerman, 2002; in Fahimi & Rahimi, 2015). In order to reach this aim, the study sought to answer the following question: Does self-assessment help EFL learners improve their writing skill?

To collect data the researchers conducted an experiment with 41 intermediate female students enrolled in an EFL learning context in Tehran. The treatment session was implemented using an ESL composition profile for a period

of four weeks. This scoring grid helped the participants to self-assess their compositions relying on teacher's explanation of criteria. The researchers collected quantitative data (i.e. participants' scores and teachers' scores). Both teacher and the participants used the ESL composition profile to generate the scores. The writing test involved all the compositions written as part of the treatment. Data from the writing test were analysed using a repeated measure of ANOVA at $\alpha=0.05$.

Analysis of the data (i.e. teacher's and participant's assigned scores) using repeated measure ANOVA indicated gradual improvement of participants' writing proficiency measured in terms of grammar, punctuation, and mechanics. The researchers found that self-assessment was meaningful, because it helped the participants to improve their writing gradually. It was a tool, which enhanced their metacognitive ability for reflection and analysis.

Comert & Kutlu (2018) implemented self-assessment in response to an increased interest in developing English language proficiency among university students. To this end, relying on theoretical models which, highlight the effectiveness of self-assessment (e.g. Andrade & Boulay, 2003, Andrade, et al., 2010; in Comert & Kutlu, 2018), self-assessment was selected as a tool which can improve writing.

The researcher advanced the thesis statement that involving the students in the self-assessment process can improve their writing achievement. This argument relied on the ground that knowledge of criteria enhances the application of standards of good work and results in improved written production. The study aimed to investigate the following research questions:

1. Is the change in the average score of the experimental group from the pre-test to the post-test significantly different from the change in the average score of the control group from the pre-test to the post-test?
2. What is the distribution of the average scores of the experimental group and control group students from the four writing tasks produced throughout the

writing classes when the teacher's grades for the second drafts are taken into consideration?

3. What is the distribution of the average scores of the experimental group from the four writing tasks for different criteria ("content," "organisation," and "language use") when the teacher's grades for the second drafts are taken into consideration?
4. What is the distribution of the average scores of the teacher's grades to the first drafts of the four writing tasks and the students' own self-assessed grades to the same tasks?

The general aim of the study was to investigate the impact of self-assessment on students' writing ability. Self-assessment was defined as a process of developing and using criteria to be used for task evaluation by the student based on elaborate discussion and feedback from the teacher.

The sample of the study consisted of two randomly selected groups with B1 level students (N=60) from a state university in Ankara, Turkey, during the second semester. The two groups were randomly assigned as control and experimental groups. Both groups were administered a writing proficiency test in order to determine their writing proficiency level before conducting the experiment.

A pre-test that consisted of a paragraph-writing task was administered to both groups before implementing the treatment. The written productions were scored using a scoring rubric. Four writing tasks were administered. The experimental group were asked to write and self-assess their first drafts using a scoring grid. The teacher was involved in providing continuous feedback on the quality of participants' self-assessment and in grading the first and second drafts. On the other hand, the control group were asked to compose their first and second drafts. They were given feedback on their first drafts, but they were not involved in using self-assessment.

The second drafts were scored by the teacher, who used the same scoring grid used by the experimental group. After four writing sessions, the post-test was administered. The same scoring grid that was used for the treatment was applied to evaluate the post-test.

The analysis of data involved quantitative analysis. The scores were analysed using “two-factor ANOVA for mixed measures”. The significance level was set at .05. Analysis of the data using two-factor ANOVA indicated that writing achievement of the experimental group is significantly different from that of the control group. Moreover, it was found that the experimental group continuously increased their average compared to the control group whose increase was slow. Besides that, they increased their average for paragraph organisation, language use, and content.

The findings of the study supported the thesis statement and were in line with theoretical frameworks, which advance the role of self-assessment in the development of writing achievement (e.g. Panadero et al., 2016). To sum up, it was found that the experimental group improved their writing, and were able to increase their total average scores in addition to their sub-scores on content, organisation, and language use. Thus, it was argued that self-assessment helps students improve their writing achievement.

1.3.2.2. Using Self-assessment Checklists to Improve Writing Ability

Mazloomi & Khabiri (2016) investigated the impact of self-assessment on writing ability. The researchers set the context by drawing attention to the absence of and lack of training in using self-assessment. They proposed their thesis statement concerning the effectiveness of self-assessment relying on both a field-based problem identified by the absence of learner-centred forms of assessment in the context; and well-grounded theories which advance the potential of self-assessment (e.g. O’Malley & Pierce, 1996; Oscarson, 1989; McNamara & Dean, 1995; in Mazloomi & Khabiri, 2016). The study sought to investigate the following research question: Does the use of self-assessment in writing have a significant effect on language learners’ writing?

A group of 60 intermediate English students were divided into control and experimental groups. They were selected from a total of N=76 participants. The treatment encompassed the use of a self-assessment checklist and a rubric for a period of 8 sessions (90 minutes each) in order to evaluate their performance in expository writing on different topics they discussed in the reading class. They discussed a set of topics based on the units of the textbooks. The checklist is composed of 40 items related to the following components: content, organisation, vocabulary, language use, and mechanics. The treatment was introduced as part of a reading/writing class. Both groups followed the same method; i.e., discussing topics/texts in the textbook and then developing them in paragraphs.

The pre-test was an IELTS writing task, while the post-test involved the participants in writing a composition of 250 words in an expository genre. Two raters used the English Language Composition Profile (Jacobs et al., 1981; in Mazloomi & Khabiri, 2016) to score the tests.

Analysis of participants scores using independent samples t-test contributed to rejecting the null hypothesis, which stated that the use of self-assessment in writing does not have a significant effect on language learners' writing. With a large effect size $r=.62$ at $p < .05$, it was assumed that self-assessment had significantly improved the writing ability of the sample. The findings were only discussed relying on previous research findings in similar contexts (e.g. Birjandi & Siyyari, 2011; Khodadady & Khodabakhshzade, 2012; in Mazloomi & Khabiri, 2016), which found a significant effect of self-assessment on English writing ability. Nevertheless, the study supports the view that self-assessment can improve writing ability.

1.3.3 Metacognition and Writing Apprehension

Previously, it was stated that self-regulation is a process of controlling metacognition and motivation, which can be developed through self-assessment. From a SRL approach, success in implementing metacognitive processes can result in improving motivation. Similarly, students' motivation and positive perceptions

can be used as a source for strengthening the potential to implement metacognitive processes (Zimmerman & Moylan, 2009).

Prom this perspective, Zimmerman & Moylan (2009) developed a socio-cognitive model, which describes the relationship between the use of metacognitive strategies and the development of positive affective factors. Accordingly, the model suggests that positive affective factors can improve the use of metacognitive strategies. Similarly, success in applying metacognitive strategies/processes can enhance positive affective factors. Thus, the model advances two types of self-regulation processes prerequisite for enhancing performance of a task: strategic self-regulation evident in the utilisation of metacognitive strategies such as planning, monitoring, and evaluating; and affective self-regulation, which involves control of motivation and emotions.

The model demonstrates interrelationship between three cyclical phases: a forethought phase, a performance phase, and a self-reflection phase. These phases are self-regulatory phases and demonstrate that self-regulation can be both strategic and affective. The forethought phase refers to “learning processes and sources of motivation that precede efforts to learn and influence students’ preparation and willingness to self-regulate their learning” (Zimmerman & Moylan, 2009, p. 300-301). It is composed of two categories: task analysis processes and sources of self-motivation. Task analysis involves ability to “decompose” a learning task and identify its constituent parts (ibid., p. 301). It has two parts: setting goals and strategic planning. Goal setting refers to “specifying the outcomes that one expects to attain” (ibid., p. 301). Strategic planning refers to “choosing or constructing advantageous learning methods which are appropriate for the task” (ibid., p. 301).

Sources of motivation include self-efficacy perceptions, outcome expectancies, task interest, and goal-orientation (ibid.). Self-efficacy perceptions are defined as “beliefs about one’s capabilities to learn or perform at designated levels” (ibid., p. 301). They refer to what a student thinks he or she is capable of doing. Outcome expectancies are “beliefs about the ultimate ends of one’s

performance” (ibid.). It refers to students’ familiarity with the results of the task. Task interest refers to “one’s liking or disliking a task because of its inherent properties rather than for its instrumental qualities in gaining other outcomes” (ibid.). It is about students’ feelings and reactions towards performing a given task. Goal orientation involves students’ “beliefs or feelings about the purpose of learning” (ibid., p. 302).

In the forethought phase, students can draw upon different sources of motivation that can be helpful in analysing a task in terms of goal setting and planning. The second phase is ‘performance’ phase. This phase also depends on different self-regulatory strategic and affective components, which are constructed metacognitively. To facilitate task performance, students can draw upon sources that may increase their motivation such as forming positive beliefs about their personal capacity to implement strategies, and ultimately this can lead to effective monitoring. Furthermore, they can be selective in their use of monitoring strategies in order to promote deeper motivation and positive perceptions of their ability.

Task-performance has two categories: self-control and self-observation. Self-control involves the use of strategies necessary to conduct the task. It has also other motivation aspects such as self-questioning and interest incentives, which are used to increase motivation during task performance. Self-observation has two forms: metacognitive monitoring and self-recording. Metacognitive monitoring refers to “mental tracking of one’s performance process and outcomes” (ibid., p. 303). Self-recording includes all information regarding the flow of performance.

The third phase, self-reflection phase is composed of two categories: self-judgements and self-reactions. Self-judgement includes self-evaluation and causal attributions. Self-evaluation is a process of analysing one’s performance against criteria (ibid). The criteria can be drawn from previous learning experiences. Causal attributions are “beliefs about the causal implications of personal outcomes” (ibid., p. 304). Self-reaction phase is composed of two forms: self-satisfaction, and adaptive/defensive decisions. Self-satisfaction refers to “cognitive and affective reactions to one’s self-judgements” (ibid., p. 304). It

involves affective factors such as motivation, task interest, and positive perceptions of self-efficacy. Adaptive decisions refer to willingness to do further similar tasks. Defensive decisions refer to avoidance to do tasks and it is responsible for producing apathy, apprehension, and task avoidance.

These positive and negative reactions depend on self-judgment. When task performance is evaluated as successful in terms of success in selecting and implementing metacognitive strategies, adaptive decisions such as self-efficacy beliefs occur. On the other hand, when performance is evaluated as inaccurate or unsuccessful, and it is attributed to incapacity to implement metacognitive strategies, defensive decisions such as apprehension occur. Ultimately, the decisions formed whether positive or negative can have an impact on future cycles of task performance and precisely on forethought phases of future tasks (ibid.). This means that students form a set of beliefs about the task and their capability to do it that can influence the way they handle similar tasks.

From this model, we can explain that self-regulation is both strategic and affective (Zimmerman & Moylan, 2009). Applying self-regulation depends on using metacognitive strategies and building affective factors. This results in obtaining feedback on performance. This feedback can engender information about the effectiveness of performance and one's self-efficacy.

There is a relationship between strategic and affective self-regulation. Strategic self-regulation can be facilitated by positive affective factors. In the same way, affective factors can be resorted to as a way to support the use of metacognitive strategies during performance. In the planning phase, ability to plan and set goals depends on motivation. The more the student is motivated, the more he or she is able to set goals and devise plans, which match these goals. At the self-monitoring stage, the use of strategies can be a support tool for enhancing motivation, which is needed for ongoing performance of the task, and for additional application of strategies.

At the self-evaluation stage, attributing success of task performance to ability to use strategies can maintain supportive affective factors such as positive emotions and self-efficacy beliefs. When failure or breakdowns are attributed to inability to use strategies, debilitating affective factors such as apprehension may occur. The resulting affective factors can have an impact on further performance of the same task.

Self-judgment determines the nature of self-reactions. For instance, writing apprehension as a reaction depends on the type of judgements the writer forms regarding the implementation and success of strategic self-regulation. It also depends on the writer's self-evaluative standards, which are used as reference points to evaluate writing self-efficacy. To explain, when task performance is evaluated as successful compared to pre-set evaluative standards, writers may form high self-efficacy beliefs. On the other hand, when performance is evaluated as inaccurate or unsuccessful, and this outcome is attributed to failure to apply metacognitive strategies, writers may develop low perceptions of their ability.

Ultimately, the type of self-efficacy perceptions formed whether high or low can have an impact on writing apprehension (Pajaras, 2003), and on future cycles of writing; precisely on the forethought phase of future writing tasks. From this discussion, it can be maintained that writing apprehension is the result of low self-efficacy beliefs, which are attributed to underdeveloped ability to implement metacognitive strategies.

The following section introduces studies, which help us understand the role of metacognition, embodied in the use of self-assessment, in decreasing writing apprehension. The section sheds light on a study, which investigated the effect of self-assessment on writing self-efficacy, which is considered an important variable in this study and the main affective factor related to writing apprehension from a socio-cognitive perspective.

1.3.3.1 Using Self-assessment to Decrease Writing Apprehension

Fathi & Khodabakhsh (2020) conducted a study to investigate the effect of self-assessment on writing apprehension. The study focused on the potential of self-assessment in decreasing debilitating affective factors related to writing. It is maintained that self-assessment is as an alternative form of assessment that fosters self-regulated learning. The study discusses the limitations of psychometric testing and teacher-centred assessment practices. Interestingly, the study puts to the front the challenges that writing in a foreign language presents, especially in terms of affective variables.

The researchers raised the role that affective factors play in shaping the quality of writing performance, and focused on writing anxiety as one of the main variables. It was defined as “a general avoidance of writing and of situations perceived by the individuals to potentially require some amount of writing accompanied by the potential for evaluation of that writing” (Hassan, 2001, p. 4; in Fathi & Khodabakhsh, 2020). Writing anxiety can cause “fear of the writing process that outweighs the projected gain from the ability to write” (Thompson, 1980, p. 121; in Fathi & Khodabakhsh, 2020).

Writing anxiety was seen as a source of different factors; namely, negative self-expectations of one’s writing quality and negative expectations from teacher’s assessment (Rankin-Brown, 2006; in Fathi & Khodabakhsh, 2020). Writing anxiety is seen as grounded in cognitive anxiety, which means that it can stem from the type of writers’ preoccupation with performance (Cheng, 2004; in Fathi & Khodabakhsh, 2020). This means that writing anxiety can decrease with an active use of strategies during the composing process, because they provide a type of preoccupation that writers may exercise.

Other factors that can be related to the use of strategies, which may affect writing anxiety, include the context of writing (Cheng, 2002). To expand, Cheng (2002) referred to situational variables such as writing course requirements, which can shape writing anxiety. Therefore, we can refer to the use of self-assessment as

an assessment activity, which alters writing course requirements and can influence writing anxiety.

The objective of the study was to see whether using self-assessment in writing classes could help students decrease their writing apprehension. This objective stems from a need to question testing practices and to expand on research studies carried out in the context under study. Furthermore, self-assessment is viewed as indispensable for improving students' autonomy and reflection.

In relation to writing anxiety, the researchers see the significance of self-assessment in different ways. First, self-assessment can provide students with opportunities to reflect on the writing process and thus to avoid cognitive anxiety, which can cause writing anxiety. Second, self-assessment can diminish factors related to writing anxiety such as negative expectations of writing which can stem from students' ignorance of criteria of good work.

To reach the objective of the study, a sample was composed of 46 Iranian English students enrolled in the English Department, Islamic Azad University. They were grouped into two intact classes of male and female participants. The study span was 12 weeks with a two-hour writing class. The groups were randomly assigned into control and experimental groups. A language proficiency test was administered to both groups before initiating the study in order to test the homogeneity of the groups.

Data on writing anxiety were collected using Second Language Writing Anxiety Inventory (SLWAI). It was administered as a pre and post-test. The inventory includes 22 items arranged in three categories: somatic anxiety, cognitive anxiety, and avoidance behaviour (Cheng, 2004). The items are arranged in a Likert-type five-scale response format. The reliability of the inventory was calculated at 0.82. To increase validity of self-assessment, the researchers explained the criteria of paragraph writing such as writing a topic sentence, developing supporting sentences, the use of transitional expressions ...etc. The aim was to facilitate the assessment process and to familiarise the participants with the use of the scoring rubric for self-assessment.

Data were analysed using a two paired-samples t-test. Analysis indicated a statistically significant decrease from the pre to the post-test ($t(21) = 4.51$, $p < 0.00$). The mean decreased from 71.23 to 67.24. The results indicated that writing anxiety decreased significantly after the use of self-assessment.

The study on the effect of self-assessment on writing anxiety offered a socio-cognitive view on the effect of metacognition envisaged in the use of self-assessment on the decrease of writing apprehension. It was argued that self-assessment enhanced students' control and agency, two components of SRL (Zimmerman, 2008). Consequently, this developed positive attitudes towards writing and contributed to the decrease of writing anxiety. The study also drew our attention to situational variables related to SRL embodied in the use of learning strategies such as self-assessment. From a socio-cognitive perspective, situational variables such as the use of learning strategies influence writing anxiety.

There is agreement that writing anxiety is related to writing self-efficacy (Pajaras, 2003). Writing self-efficacy becomes critical when writing tasks are demanding and students' perceptions are valued. This can be particularly true for university students who need to demonstrate confidence in their writing abilities in order to progress autonomously. Moreover, from a socio-cognitive perspective, writing self-efficacy determines the type of other affective reactions such as writing anxiety and attitudes. Thus, the effect of self-assessment on writing self-efficacy is worth considering.

1.3.3.2 Using Self-assessment to Increase Writing Self-efficacy

Fathi, Afzali, & Parsa (2021) investigated the effect of self-assessment on writing self-efficacy. The study highlighted the potential of alternative self-assessment in enhancing facilitative affective factors related to writing such as self-efficacy. It is argued that alternative forms of assessment such as self-assessment increase students' opportunities to experience autonomy and agency.

The study highlights the potential of self-assessment as a pedagogical practice. It centres the discussion on ideas such as self-awareness, autonomy, and

self-regulation. The role of self-assessment in decreasing anxiety associated with writing is referred to, and self-assessment was linked to the development of students' confidence and positive perceptions (Andrade & Valtcheva, 2009; in Fathi, Afzali, & Parsa, 2021).

Interestingly, the study advances the constructivist role of self-assessment understood in terms of filling the gaps between current performance levels and the desired standards. The researchers raised the need to expand on research studies and to examine the role that self-assessment plays in enhancing writing self-efficacy. In this regard, it was defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performance" (Bandura, 1986, p. 391; in Fathi, Afzali, & Parsa, 2021).

Writing self-efficacy is a key variable that has the potential to influence students' writing performance. From a socio-cognitive perspective, it depends on the type of feedback writers acquire throughout feedback loops, which represent a set of metacognitive experiences. It is an adaptive reaction resulting from success in utilizing monitoring and control metacognitive strategies (Zimmerman & Moylan, 2009). From the perspective of the study, writing self-efficacy was conceptualised as perceived success in using linguistic elements such as content, organisation, sentence structure, vocabulary, grammar, and format. Cheng (2004) referred to this aspect of self-efficacy as linguistic self-efficacy.

The study aimed to see whether using self-assessment can help students develop writing self-efficacy. This objective stems from a need to highlight the role that self-efficacy beliefs play in shaping students' writing process and product. Moreover, it seems interesting to find innovative practices such as self-assessment to improve positive affective factors.

To meet the objective of the study, the sample consisted of randomly selected intermediate Iranian EFL students (n=17) enrolled in an English institute in Tehran, Iran. A writing self-efficacy scale (WSEF) was administered before implementing the treatment. The scale was developed by Cheng (2004) and includes nine items related to measuring students' confidence in English writing

described in terms of aspects such as content, organisation, sentence structure, vocabulary, grammar, and format. The scale reached a reliability coefficient of 0.80.

The self-assessment intervention consisted of a writing scoring scale developed by Jacobs et al. (1981). The analytical scoring scale is composed of a set of criteria such as content, language use, organisation, vocabulary, and mechanics. The scale was used to assess written compositions after 15 sessions. After the treatment sessions, the writing self-efficacy scale was administered.

Data were analysed using a paired-samples t-test. Analysis indicated a statistically significant increase from the pre-test to the post-test ($t(16) = -6.68$, $p < 0.00$). The mean increased from 5.29 (SD=1.47) to 6.21 (SD=1.36). This has indicated that writing self-efficacy improved significantly after the use of self-assessment.

The study on the effect of self-assessment on writing self-efficacy centred on the potential of self-assessment in the development of writing self-efficacy. This was explained referring to the increase of students' familiarity with standards of quality work, which led to improving their writing and developing their self-efficacy. It was argued that self-assessment enhanced students' motivation to improve their writing. Consequently, this developed positive perceptions and confidence.

Conclusion

Chapter 1 on self-assessment discussed the literature on self-assessment in EFL, and it described key metacognitive processes, which represent the interworking of self-assessment operations. Section 1 reviewed the definitions of self-assessment in addition to an understanding of typologies and tools, which can be helpful for the implementation of self-assessment. Section 2 covered the conceptual framework of self-assessment. It grouped and discussed different concepts which define self-assessment including, formative assessment, authentic assessment, and self-regulated learning.

Considering the elements of self-assessment described in section 2, it was put forward that self-assessment is a self-regulation tool, which involves metacognitive and affective processes. Moreover, it depends on the use of criteria with the aim of improving work in progress. Another aspect of self-assessment is continuous monitoring of performance aiming at generating reusable feedback that can be applied to improve performance. Section 3 reviewed metacognitive processes and theories on metacognition including earlier theories (Flavell, 1979), and more recent ones (Hartman, 2001).

The review was based on a discussion of the different components of metacognition; namely, metacognitive experiences, metacognitive knowledge, and metacognitive monitoring and control. Relying on theoretical models and research studies, the impact of metacognition on writing strategies, writing ability, and writing apprehension was analysed. It was argued that the metacognitive nature of self-assessment renders it a key tool that can train students to apply metacognitive monitoring and metacognitive control, which are crucial for the selection and implementation of writing strategies and for the development of students' use of linguistic elements. Furthermore, relying on socio-cognitive models of SRL (e.g. Zimmerman & Moylan, 2009), a direct link has been made between the development of students' ability for strategic self-regulation and the improvement of positive affective reactions such as low writing apprehension and high writing self-efficacy.

Chapter 2: EFL Writing

Introduction

The second chapter is entitled “EFL writing”. It is organised in three sections. Section 1 addresses writing strategies; mainly, metacognitive and cognitive strategies. The inclusion of these aspects of EFL writing is necessary to understand the metacognitive and cognitive processes involved in EFL writing. Consequently, this can be useful to discover how these processes can be improved. For instance, in this study we review the model of writing performance developed by Zimmerman & Risemberg (1997) in order to identify the metacognitive operations and affective factors involved in writing. Therefore, this can clarify the relationship between the use of writing strategies, the development of writing ability, and the decrease of writing apprehension.

Section 2 provides a description of EFL writing ability. It starts with a definition of the construct writing ability. This is followed by an analysis of models of the writing process and EFL composing processes. This section also discusses basic considerations in assessment of EFL writing, including assessment principles, self-assessment of writing, and language proficiency models. Examination of language proficiency models helps us know more about the criteria that can be used in scoring grids and the standards of EFL writing that can be included in self-assessment activities.

Section 3 examines the affective factors that influence writing, mainly writing apprehension. It integrates a discussion of self-efficacy, a major variable that is related to writing apprehension. The analysis of this construct is in parallel with socio-cognitive theories, which integrate writing apprehension as a major factor related to affective self-regulation.

2.1. Writing Strategies

Writing strategies are communicative techniques writers use consciously to realise psycholinguistic processes relevant to strategic competence; namely, goal setting, assessing, and planning. Writing strategies are also implemented in response to strategic self-regulation processes. In this vein, they involve, planning writing, monitoring writing, and evaluating writing. Writing strategies are part of composition processes (e.g. Flower & Hayes, 1980; Bereiter & Scardamalia, 1987; Zimmerman & Risemberg, 1997). For instance, these models described the nature of the writing process and identified metacognitive and cognitive processes such as planning, goal setting, and reviewing.

Most notably, writing strategies have been discussed in Flower & Hayes (1980) model. For instance, Flower & Hayes (1981, p. 366; in Heine, 2010) maintained, “the process of writing is best understood as a set of distinctive thinking processes which writers orchestrate or organise during the act of composing”. The model centres round organising, monitoring, and evaluating strategies. Cognitive strategies such as generating ideas, translating thoughts into text, organising ideas, reading, re-reading, editing have been included and will be discussed in section 2.2.2. page 119.

Similarly, Bereiter & Scardamalia (1987; in Heine, 2010) referred to a set of metacognitive and cognitive strategies; namely, goal setting, using background knowledge, locating background knowledge, testing, drafting, and taking notes. Hayes (1996; in Heine, 2010) focused on strategies such as goal setting. The model includes cognitive strategies such as brainstorming background knowledge, analysing source texts, and it centres on strategies such as reading, re-reading, and reflecting while reading.

A further instance of this is Zimmerman & Risemberg’s model that (1997) highlighted strategies such goal setting, planning, reflecting, and problem solving. In line with this, Hyland (2003) referred to writing as “a socio-cognitive activity which involves skills in planning and drafting as well as knowledge of language, contexts and audiences” (p. 23).

According to Oxford (2017, p. 272), “L2 writing strategies are teachable, dynamic thoughts and behaviors that learners consciously select and employ in specific contexts to improve their self-regulated, autonomous L2 writing development for effective task performance and long-term proficiency”. Writing strategies are crucial for successful L2 writing. (Manchon et al., 2007, pp. 229-250) see that

“L2 writers implement a wide range of general and specific strategic actions in their attempt to learn to write...; L2 writer’s strategic behaviour is dependent on both learner-internal and learner-external variables...; the writer’s strategic behavior is mediated by the instruction received and can be modified through strategy instruction”

This view suggests that writing strategies are basic goal-oriented components of the writing process, which can be developed by students after explicit instruction through the process approach to writing or training in self-regulated learning activities such as self-assessment. The process-oriented approach to writing “enumerates, retrieval of information relevant to the task from memory, transfer of the background knowledge into writing, generation of new ideas, formulation of goals for the successful completion of the task, and the grouping of ideas in a sequential methodology” (Sethuraman & Radhakrishnan, 2020, p. 106). This definition depicts writing strategies such as using background knowledge, generating ideas, organising ideas, setting goals, and planning.

The writing process is a systematic activity, which incorporates four basic writing stages; namely, planning, drafting, revising, and editing (Seow, 2002). As part of the writing process, writing strategies are implemented recursively in a non-sequential process. For instance, writers can plan anew in the drafting stage. They may re-revise after editing (ibid.).

In this regard, Zamel (1983; in Hyland, 2003, p. 11) views writing as “a non-linear, exploratory, and generative process whereby writers discover and reformulate their ideas as they attempt to approximate meaning”.

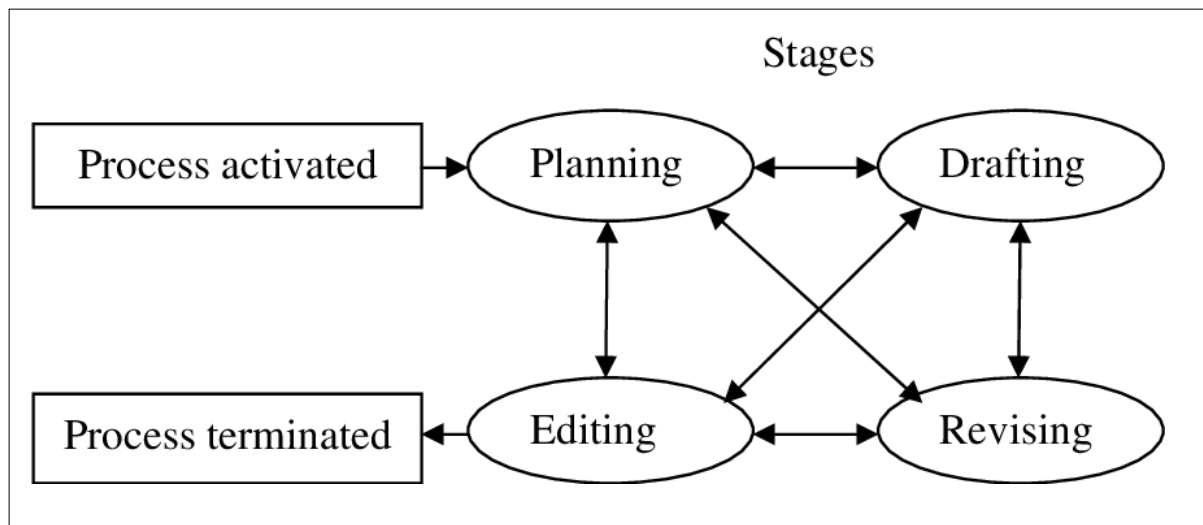


Figure 21: The Writing process (Seow, 2002, p. 315)

Writing strategies are techniques for self-regulated writing processes (Oxford, 2017). The utilisation of writing strategies involves reference to metacognitive knowledge and execution of metacognitive processes. Writers start with manipulating their metacognitive knowledge about “(a) who they are as writers, (b) features of the writing task, and c) appropriate strategies for achieving their writing purpose” (Oxford, 2017, p. 278).

Metacognitive knowledge encompasses “‘pre-writing talk’... to activate students’ background knowledge and expectations of a writing task” and an “‘invention talk’... to generate ideas and ways to express them” (ibid.). Second, writers need actual implementation of strategies such as planning, goal setting, monitoring, and evaluating (ibid.).

Writing strategies are used at three levels of the writing process: pre-writing stage, writing stage, and re-writing stage, encompassing strategies such as planning, goal setting, generating, organising, translating, reviewing, and editing (Sethuraman & Radhakrishnan, 2020). Planning involves the following types of strategies depending on writer’s proficiency level (Oxford, 2017):

- (a) global planning: it is a thorough consideration of audience's needs and how the text is structured,
- (b) thematic planning: it is a less elaborate type of planning for the organisation of ideas, and
- (c) local planning: it is planning about adding ideas to a text regardless of text organisation.

In addition, Oxford (1990) referred the following metacognitive writing strategies:

- **Goal setting and planning:** It refers to the process of identifying and organising task requirements and information. It involves the following cognitive strategies: writing goal-statements; taking-notes; drawing plans; free writing; clustering information; specifying tasks; setting time limits and schedules for the task; asking questions; reviewing the writing task by identifying its purpose, components, and demands; using background knowledge to analyse the task; identifying language demands (i.e. structures, functions, and vocabulary).
- **Monitoring:** It is noticing and correcting while writing. It is the process of reviewing and examining writing using strategies such as reading, re-reading, drafting, re-drafting, locating errors, analysing one's writing in terms of content and organisation of ideas, and reflecting on one's writing.
- **Evaluating:** It is the strategy responsible for "gauging general progress" (ibid., p. 162). It involves doing a final reading and editing grammar, vocabulary, and mechanics, and organisation; comparing one's product with other samples, and reflecting on one's strengths and weaknesses for improving further tasks.

2.2. Description of EFL Writing Ability

Bachman and Palmer (1996) suggested an elaborate conceptualisation of the construct “language ability”. They held that the description of a construct could serve different purposes, more notably evaluation purposes. An accurate definition of the construct “writing ability” is a prerequisite to understand the nature and demands of writing in an EFL context for example. Moreover, it is fundamental for the specification of assessment criteria.

Applied to writing, the construct ‘language ability’ by Bachman & Palmer (1996) helps us to point out some components of writing ability. Thus, writing ability comprises language knowledge, topical knowledge, and strategic competence. The first component is language knowledge, which is linguistic information stored in long-term memory. The use of language knowledge is processed using strategic competence, and facilitated by topical knowledge. Strategic competence determines the linguistic and pragmatic elements to use by the writer to achieve his/her communicative goals. On the other hand, topical knowledge provides knowledge schemata that are stored in long-term memory and are used for language production.

In particular, language knowledge includes organisational and pragmatic knowledge. Firstly, organisational knowledge is responsible for the organisation of sentences into coherent texts, and it is realised depending on grammatical and textual knowledge. Grammatical knowledge is used to produce accurate sentences using elements such as vocabulary, graphology, and syntax. Textual knowledge is used to produce texts, and it involves knowledge of cohesion and coherence necessary to link sentences. Knowledge of coherence serves a rhetorical function, which is necessary to maintain meaning-based organisational development of ideas in texts. Knowledge of cohesion serves language-based organisational ordering of sentences.

Secondly, pragmatic knowledge is responsible for producing a written discourse, which is composed of meaningful sentences related to the purposes of

writing and to a language use situation (Bachman & Palmer, 1996). It has two areas of knowledge, functional and sociolinguistic knowledge. Functional knowledge is used “to interpret relationships between utterances or sentences and texts and the intentions of language users” (Bachman & Palmer, 1996, p. 69). It is used to express different functions: ideational, manipulative, heuristic, and imaginative.

Ideational function refers to “the use of language to express or exchange information about ideas, knowledge, or feelings” (ibid.). This function is used to classify, describe, explain, and express feelings. In writing, it is used to form different writing genres; e.g., descriptive, expository, argumentative...etc. Manipulative function refers to using language to influence people. It has three types: instrumental (e.g. writing requests, suggestions, warnings), regulatory (e.g. writing rules and laws), and interactional (e.g. writing apologies, insults, compliments). Through heuristic function, writers can use language to extend their knowledge by means of using language to reflect and solve problems. Imaginative function enables writers to use imaginary language, which is typical of poetry and literary works.

Sociolinguistic knowledge is necessary to “create or interpret language that is appropriate to a particular language use setting” (Bachman & Palmer, 1996, p. 97). Sociolinguistic knowledge helps writers to produce language that is appropriate to a language use context (Bachman, 1990; in Fulcher & Davidson, 2007). It includes knowledge of registers and cultural aspects in writing. Register is based on three main components: the field of discourse (i.e. context of writing), mode of writing (i.e. discourse domain), and style of discourse (i.e. formal or informal) (Fulcher & Davidson, 2007). The second type is topical knowledge. It refers to background knowledge of a given topic stored in long-term memory.

Strategic competence encompasses a set of metacognitive strategies, which are a set of “executive processes that provide a cognitive management function in language use” (Bachman & Palmer, 1996, p. 70). First, goal setting is about identifying and selecting language competences needed to realise the

communicative demands of the task in its context (Fulcher & Davidson, 2007). Second, assessment refers to a process of analysing language competences and task demands to achieve communicative goals of the task. It gives information about:

- (1) The characteristics of the task during performance which can be helpful to assess the appropriateness of competences selected ,
- (2) The effectiveness of one's own knowledge (topical or linguistic), and
- (3) The appropriateness and relevance of one's language and meaning to meet communicative goals (ibid.).

Third, planning is the executive component, which helps the writer to apply what he or she has assessed for relevance and appropriateness. The writer selects items from language knowledge and topical knowledge and formulates plans to implement them depending on his/her communicative goals and task demands (Bachman & Palmer, 1996).

To conclude, Bachman and Palmer's definition of writing ability involves two types of knowledge components; namely language and topical, which are stored in long-term memory; in addition to strategic competence that is responsible for managing the use of language and knowledge schemata.

The ability to write in a foreign language depends equally on different types of competences. However, writing demands vary depending on the needs and purposes of foreign language students (Weigle, 2002). While some writing competences assume a greater role with adult students in academic contexts, linguistic competence remains fundamental for the majority of EFL writers. Specifically, in academic settings, EFL writing bears specific components. Following Vahapassi's model of writing discourse (Vahapassi, 1982; in Weigle, 2002), academic writing in a foreign-language context has the following characteristics:

1. The purpose: it is to inform or to convince;
2. The audience: it is mainly others (i.e. teachers);

3. Cognitive processing: it is to generate ideas;
4. Primary content: it can be expository writing (e.g. writing definitions, academic essays or articles, book reviews, and commentary), or argumentative (e.g. writing editorial essays or articles; critical essays or articles);
5. The discourse is exploratory.

As much as academic writing in EFL depends on linguistic competence, it is heavily tied to social and cultural conventions (Weigle, 2002). This is because it is “an act that takes place within a context, that accomplishes a particular purpose, and that is appropriately shaped for its intended audience” (Hamp-Lyons & Kroll, 1997; p. 8). This means that academic writing necessitates specific linguistic components and rhetorical organisations, which respond to the needs of the language context situation and reflect cultural conventions. Moreover, cultural expectations and intercommunication patterns shape how the text is organised and how others read it. The Culture of the target language dictates the conciseness, clarity, logic, and organisation patterns of a text, because cultural schemata can influence text organisation and word choice (Hyland, 2003).

To explain, Academic writing in EFL emphasises socio-cultural aspects whereby discourse conventions are key (Leki, 1992; in Weigle, 2002). Students need to consider “examining the kinds of issues a discipline considers important, why certain methods of inquiry and not others are sanctioned, how the conventions of a discipline shape text in that discipline, how individual writers represent themselves in a text, and how texts are read and disseminated within a discipline” (Spack, 1988, p. 38).

Culture influences writing to a major extent in that “cultural preferences make greater use of certain options among the linguistic possibilities” (Grabe & Kaplan, 1996, p. 184; in Hyland, 2003). This means that the choice of linguistic patterns is influenced by cultural conventions. Students can be aware of the cultural variations by learning the appropriate rhetorical organisation of English

texts, and the different genres and registers in addition to the linguistic items, which realise them.

Cultural aspects of academic written texts are apparent in the way texts are organised and ideas are expressed. Reader prose or audience awareness is also a strong determinant of cultural aspects (Leki, 1992; Weigle, 2002). EFL writers need to cope with the demands of academic writing which are related to the discourse community. Academic writing has specific vocabulary and a repertoire of genres which students are required to be familiar with.

In academic contexts, social and cultural conventions in writing are highlighted (Weigle, 2002). In this vein, Hayes (1996, p. 5; in Weigle, 2002) viewed writing in a foreign language as “social because it is a social artefact and is carried out in a social setting”. Further, texts produced are “shaped by social conventions and by our history of social interaction” (ibid.).

Awareness of cultural conventions of EFL writing is crucial for effective academic writing. Connor (1996; in Hyland, 2003), Grabe & Kaplan, (1996; in Hyland, 2003), Hinkel, (2004) identified six basic linguistic and discourse features of compositions written by EFL writers, and referred to EFL writers’ lack of awareness of cultural conventions of writing:

- Less use of organisation patterns;
- Less argumentation patterns;
- Limited language forms to get reader attention;
- Lack of awareness of reader prose;
- Limited use of cohesive devices; and
- Less specificity, less subordination, less passives, and less lexical variety in compositions.

To conclude, cultural conventions in English writing are evident in the way texts are organised and linguistic items are selected. In academic writing, students need to be familiar with the different organisation patterns of texts (e.g. paragraphs), and how they can selectively use language to communicate their ideas

in a precise way, taking into consideration discourse components such as audience and register. In order to highlight the essential components of EFL writing, we review composition theories in the following section.

2.2.1. EFL Composition Theories

In relation to EFL composition, John (1990) discussed different approaches in order to classify essential components and demands of EFL writing. These components are the writer and the audience (i.e. reader). Outlining these components helps to understand the cognitive processes and linguistic demands involved in EFL writing.

2.2.1.1. The Cognitivist Approach

The EFL writer from a ‘cognitivist’ approach is a problem-solver who approaches the composing process by applying different strategies (John, 1990). From this perspective, the focus is on the writer as a possessor of cognitive and metacognitive processes, which enable him/her to identify breakdowns and obstacles while writing. Accordingly, writing proficiency is determined by the way the writer applies strategies to the writing task.

There are different views on how the role of the audience is determined. The role of the audience reflects cultural aspects of a foreign language. In this view, writers are responsible for their writing. They establish purpose, meaning, and form. The linguistic elements they select shape and respond to audience needs (Nystrand, 1986; in John, 1990). This view focuses on the writer as a creator of meaning in the text, bearing in mind that the reader also is taken into consideration.

2.2.1.2. The Interactionist Approach

From an ‘interactionist’ perspective, the writer is constantly involved in a dialogue with his or her audience (Bakhtin, 1973; in John, 1990). Accordingly, EFL writers need to be aware of the social and cultural dimensions of English writing. Knowing that English is a “writer-responsible language” (John, 1990, p. 27; Meyer, 1977; in John, 1990), writers need to produce a language that is direct, clear, and precise in order to make information and language accessible to the

reader. To do so, they have to identify the topic, structure the arguments hierarchically, and organise the text logically with appropriate transitions (Singer, 1984; in John, 1990).

According to this view, the writer determines the form, structure, and function of the text s/he produces. Similarly, the reader is assumed to process content and language schemata (Carrell, 1983; in John, 1990). This means, the reader uses both top-down and bottom- up processing to understand the text relying on the writers' clear, direct and precise production. Thus, coherence of the text is established based on the reader's schemata and the writer's choice of linguistic elements (i.e. organisation patterns, content, and argument of the text). The writer and the reader are involved to "balance" the coherence of the written text (Ede & Lunsford, 1984, p 16; in John, p. 1990).

2.2.1.3. Socio-constructionist Approach

This approach to writing views the written product as "a social act that can take place only within and for a specific context and audience" (Coe, 1987; in John, 1990, p. 27). From this perspective, writers need to demonstrate sociolinguistic competence in a number of ways. This is related to the way language and form of the text reflect the discourse community for which it is written (ibid.). Thus, knowledge, language, and the nature of discourse are determined for the writer by the 'discourse community' for which s/he writes (John, 1990). A discourse community has the following elements (Swales, 1990; in John, 1990):

1. It shares a set of goals;
2. It has a system for intercommunication among its members (e.g. journals and newsletters);
3. It has genres which respond to different communicative goals;
4. It has specific vocabulary;
5. It adheres to a threshold level, which specifies relevant content and 'discourse' competence.

This view considers writing as a social act in which the reader has the authority to determine the coherence and meaning of a text. The writer is considered an “outsider”, while the reader is more knowledgeable because it is part of a discourse community (Bizzell, 1987; in John, 1990, p. 31). The reader (i.e. audience) has the power to accept or reject writing in terms of its coherence and consistency with the conventions of the target discourse community (ibid.). Here, “knowledge of audience’s attitudes, beliefs, and expectations is not only possible...but essential” (Ede & Lunsford, 1984, p. 156; in John, 1990).

From the above-mentioned composing processes, we can distinguish the following demands of EFL writing:

- EFL writing is a problem-solving activity which involves the writer in using a set of strategies to regulate the writing process;
- EFL writing depends on the orchestration of linguistic, sociolinguistic, and strategic competences;
- EFL writing has cultural dimensions, which require writers to respect the rhetorical conventions of English writing such as conciseness, clarity, and logic.
- EFL writing has discourse conventions which require writers to use language that satisfies the demands of the discourse community;
- EFL writers need to consider the audience for whom they write. They need to respect the sociolinguistic elements of the language and present language elements (e.g. words and sentences) in appropriate and accessible ways.

From this discussion, it can be maintained that EFL writing involves linguistic and discourse elements. It also depends on metacognitive processes such as problem solving. Moreover, it relies on linguistic elements to convey social meaning. This means that the language selected and the organisational patterns followed reflect the needs of the audience; and the writer is constantly engaged in metacognitive operations, which guide the success of the writing process and the clarity of the written product.

EFL writing follows processes that are conceptualised in terms of strategy use. In line with this, analysing a number of case studies (e.g. Jones, 1982; Zamel, 1982; Delsky, 1982; Zamel, 1983; Raimes, 1985a; Gaskill, 1986; Jones and Tetroe, 1987; Cumming, 1987), Krapels (1990) & Hyland (2003) identified the following characteristics of EFL writers:

- Lack of competence in EFL writing is due to underdeveloped ability to use writing strategies, but not to linguistic competence;
- Unskilled L2 writers are similar to unskilled L1 writers in terms of writing proficiency. The difference between L1 and L2 writing relates to the use of strategies and not to language competence;
- First language writing processes transfer to second/foreign language writing processes;
- The use of the first language is a common strategy used by EFL writers while they compose;
- General composing processes are to a great extent similar between L1 and L2 (Hyland, 2003);
- The ability to self-regulate the writing process can be an obstacle for both L1 and L2 writers (Hyland, 2003);
- Strategies may or may not transfer from L1 to L2 (ibid.);
- L2 writers plan less than L1 writers (ibid.);
- L2 writers have difficulty setting goals (ibid.);
- L2 writers revise more but reflect less (ibid.);
- L2 writers' knowledge schema and writing is influenced by their cultural background and beliefs, which in turn shape the texts they produce (ibid.).

These studies pinpointed to different mechanisms involved in EFL writing. Interestingly, there is direct reference to the use of metacognitive strategies. Therefore, the following section analyses different writing models to obtain a clear view on self-regulation processes responsible for the management of cognitive writing strategies as executive processes.

2.2.2. Self-regulation Processes in Writing

In the literature, different models have been advanced to describe the nature and structure of the composing process (e.g. Hayes & Flower, 1980; Bereiter & Scardamalia, 1987; Hayes, 1996; in Weigle, 2002). These models were used to describe writing processes and were applied to foreign language writing. The structure of the writing process in these models was investigated through protocol analysis.

The conceptualisation of the nature of the writing process was based on theories of language learning. In this vein, earlier models (e.g. Rohman, 1965; in Heine, 2010) reflected the behaviourist approach to language learning. These were followed by a shift of emphasis to models which drew attention to the cognitive and self-regulatory mechanisms of writing (e.g. Hayes & Flower, 1980). Furthermore, more recent ones (Zimmerman & Risemberg, 1997) incorporated the affective dimensions of the composing process, and proposed that self-regulation of writing can involve metacognitive and affective processes.

Different models are to be reviewed in the following sections in order to highlight the self-regulation processes they integrate as part of writing and to compare their nature and function. Therefore, this can be helpful to understand the nature of EFL writing as a metacognitive process, and to analyse any other factors that can influence the quality of writing performance.

One of the earliest models of writing process was suggested by Rohman (1965; in Zimmerman & Risemberg, 1997). In this model, writing process consisted of consecutive phases: planning (pre-writing phase), drafting (writing), and editing and revising (rewriting). This model fell short of accounting for the recursive nature of the writing process and the interconnectedness among its stages. This has led to the emergence of models, which described writing as a non-linear process (e.g. Hayes & Flower, 1980; Bereiter & Scardamalia, 1987; Hayes, 1996).

2.2.2.1. Model of Writing Process by Hayes & Flower (1980)

Flower and Hayes (1980) developed a model of writing process, which has three components: Task environment, writer's long-term memory, and writing process. "Writing process" component operates within the other two processes; i.e., the writer processes information from long-term memory and relates it to task environment in order to write. Task environment refers to a set of information available to the writer. It encompasses the following elements: the nature of the writing assignment, the topic, the audience, motivating cues, and the text produced so far (Hayes & Flower, 1980).

The writer's long-term memory is the source of information for all the elements needed for writing: the topic, the audience, and information about the nature of the task (ibid.). It also includes knowledge about writing in general. For instance writing plans, grammatical structure, and organisation patterns (ibid.). It is the writers' metacognitive knowledge base, which involves students' background knowledge about writing.

The writing process consists of three major processes: planning, translating, and reviewing which encompass related sub-processes (Hayes & Flower, 1980). The planning process encompasses generating, organising, and goal-setting sub-processes. In the planning process, the writer sets goals by using different sources: either by retrieving the necessary information from long-term memory, or specifying goals based on task environment (i.e. what is indicated in the demands of the writing task including topic and instructions). Further, goals are used to draw plans. Writers can draw plans using information from long-term memory including what they know about the task (i.e. its components and organisational features) (ibid.).

First, writers generate or "retrieve information relevant to the writing task from long-term memory" (p. 63). The information they retrieve is selected depending on task environment; i.e., the characteristics of the task, the topic, and the audience. Writers monitor the 'generating' process by assessing the appropriateness of the information they retrieve to task demands. They can retrieve

information related to the topic or to the task (e.g. information on how to write a paragraph). The appropriate items are selected (i.e. written as notes) during the 'organising' process. When the items are not appropriate, the writer re-starts the generating process until useful items are found. Items are information about the writing task (e.g. paragraph ideas and organisation pattern, information about the topic, or linguistic knowledge).

In the 'organising' process, the writer orders the relevant items/information selected from the 'generating' process in the form of plans. The plans can be kept metacognitive (i.e. mental) or transformed into a written form. The plan demonstrates the order of ideas, headings, sub-headings, relations...etc. The writer monitors the organising process by assessing the adequacy of items selected for the plan. If other items are necessary, the writer can re-start the 'generating' process to search for other items from long-term memory, which are in accordance with task environment/characteristics. The writer can move to the editing phase at this stage. This means that written plans, which are drafted as notes can be edited for spelling, grammar, or for mechanical errors.

Following the 'organising' process, the writer sets goals to execute the organised plans. Similar to planning, goal setting can be mental or written. Goals are specified based on criteria, which can be drawn from long-term memory. Goal setting is the process, which helps the writer to organise information generated following task demands. Monitoring is used to assess the structure and logic of goals. If breakdowns occur at the level of goal-setting, writers monitor by re-considering the manner in which the items have been organised. Consequently, this might lead to initial phases of generating. Similarly, the writer can edit the goals he or she has stated. Editing is only mechanical and concerns language and form.

In the second phase 'translating', the writer transforms plans into written ideas using information from long-term memory (ibid.). To write an idea, the writer refers to the plans drawn at the planning stage, and consistently considers the goals he or she has set. The writer monitors by checking if the ideas written

correspond to the plans and to the goals of writing. If breakdowns occur, the writer plans anew or starts generating information using long-term memory.

Simultaneously, the writer can revise the plans and set other goals. During the 'translating' phase, writers reflect continuously. For instance, they consider the structure of sentences, the organisation of ideas, or the order of ideas. They can resort to editing, and most importantly rely on linguistic knowledge in order to scrutinise the form of sentences.

In the reviewing process, the writer reads and edits the written text in order to assess its correspondence to the goals specified. Reviewing depends on reading which enables writers to reflect on their writing and to diagnose the text they have produced. To that end, writers can reflect by drawing on different sources (e.g. long-term memory) or notably on metacognitive processes, which can help them solve problems.

Through 'editing', the writer examines the text by reading or writing notes. The purpose of 'editing' is to ensure accuracy of meaning and language (i.e. language components such as grammar, spelling, and mechanics); and edit for audience acceptance (i.e. register). The editing process is based on the goals specified in the planning stage; i.e., the writer considers conformity of the written production to the goals stated. Editing can be used at any phase, since it concerns improving the 'appearance' of what is written (ibid.).

This model illustrates that the writing process proceeds in a recursive manner. This means that a particular phase can be interrupted by another phase. This interruption functions based on the monitor. The monitor is a metacognitive component, which guides the sequencing and timing of writing stages. Through problem-solving processes, the monitor is activated and consequently the writer selects the appropriate strategy to use. The strategy can be a goal-setting strategy, a planning strategy, or even strategy for evaluation.

Hayes & Flower (1980) model is influential in terms of responding to different components of self-regulated writing processes that function based on

metacognitive processes such as generating, organising, and planning language-related components in a structured manner following writing process stages. Furthermore, it illustrates the structure and function of strategic competence presented by Bachman & Palmer (1996) to account for the higher order executive processes necessary for the management of the writing process.

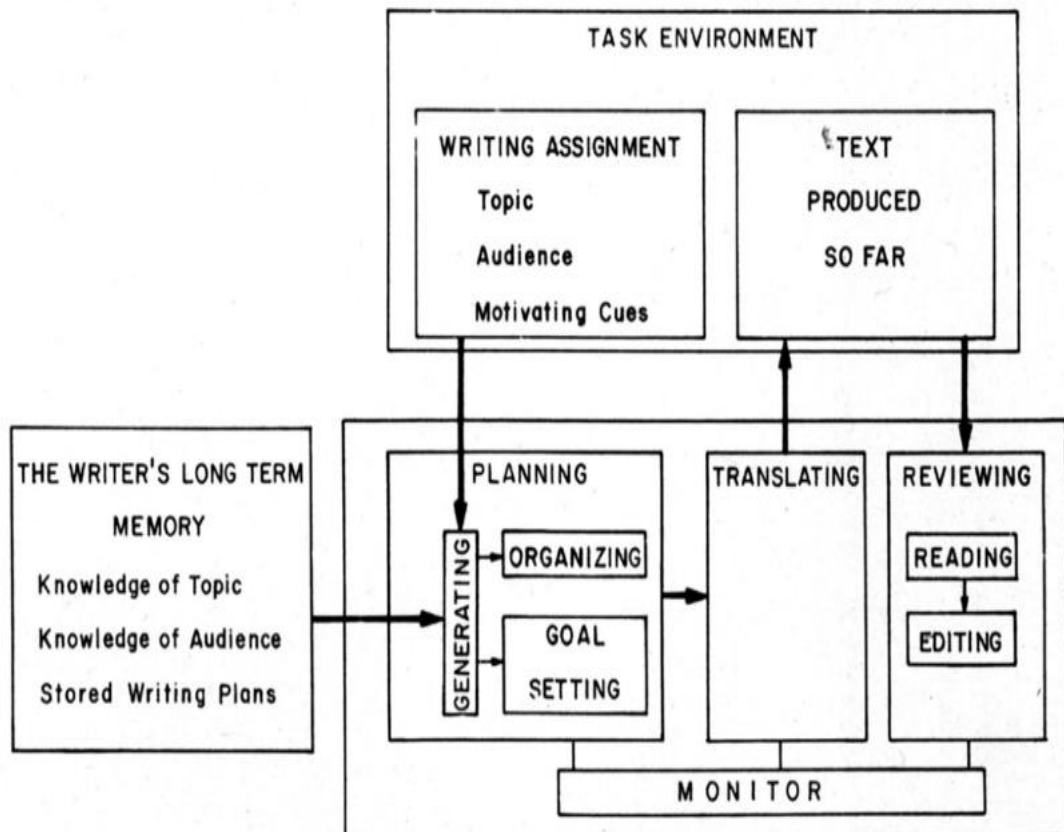


Figure 22: Hayes-Flower (1980) Model

The model also explains that writing is a self-regulation process through which the writer explicitly monitors her/his writing, set goals, plans, organises information, selects strategies to be used, and evaluates the success of the actions he or she has taken and the accuracy of items selected. The writer constantly uses self-monitoring which helps to evaluate the effectiveness of the strategies used; for instance, a goal-setting strategy or a planning strategy. To sum up, in this model Hayes & Flower (1980) conceptualised the writing process in the following points:

- (a) Writing is a goal-directed activity,
- (b) writing process is recursive,

- (c) writing is a problem-solving activity,
- (d) writing is a metacognitive process which functions on the basis of the monitor,
- (e) writers alter strategies in order to reach the goals they set, and
- (f) The writing process depends on the use of metacognitive knowledge, which is stored in long-term memory and metacognitive strategies processed by the monitor.

Compared to subsequent models, it can be seen that Hayes & Flower (1980) identified long-term memory as the source of knowledge and information, which can help the writer to produce. Nevertheless, Hayes (1996; in Weigle, 2002) described other sources which are crucial for writing such as reading. Moreover, affective factors are limited to writers' motivation to write. Motivation is seen as a "cue" and is given a product-oriented function; i.e. it can determine the quality of writing only: when the writer is motivated, he/she can write well. When he/she is not motivated, he/she cannot write well.

2.2.2.2. Flower, et al. (1986) Model

Flower, et al. and Hayes, et al. (1986; in Becker, 2006) expanded on their model in order to highlight the processes that occur during revision. To that end, two sub-stages were added:

- (1) Processes: these comprise reading to evaluate, selecting strategies, and executing the revision process.
- (2) Knowledge: it includes definition of the task, identification of criteria for planning, problem representation, and revision procedures.

This model centres on cognitive processes involved in the revision and evaluation phases. Writers' knowledge and intentions are also included, and reading is given paramount importance because it is considered an effective strategy for revision. From the perspective of this model, revision is a strategy, which is implemented to diagnose potential problems that may obscure writer's communicative goals.

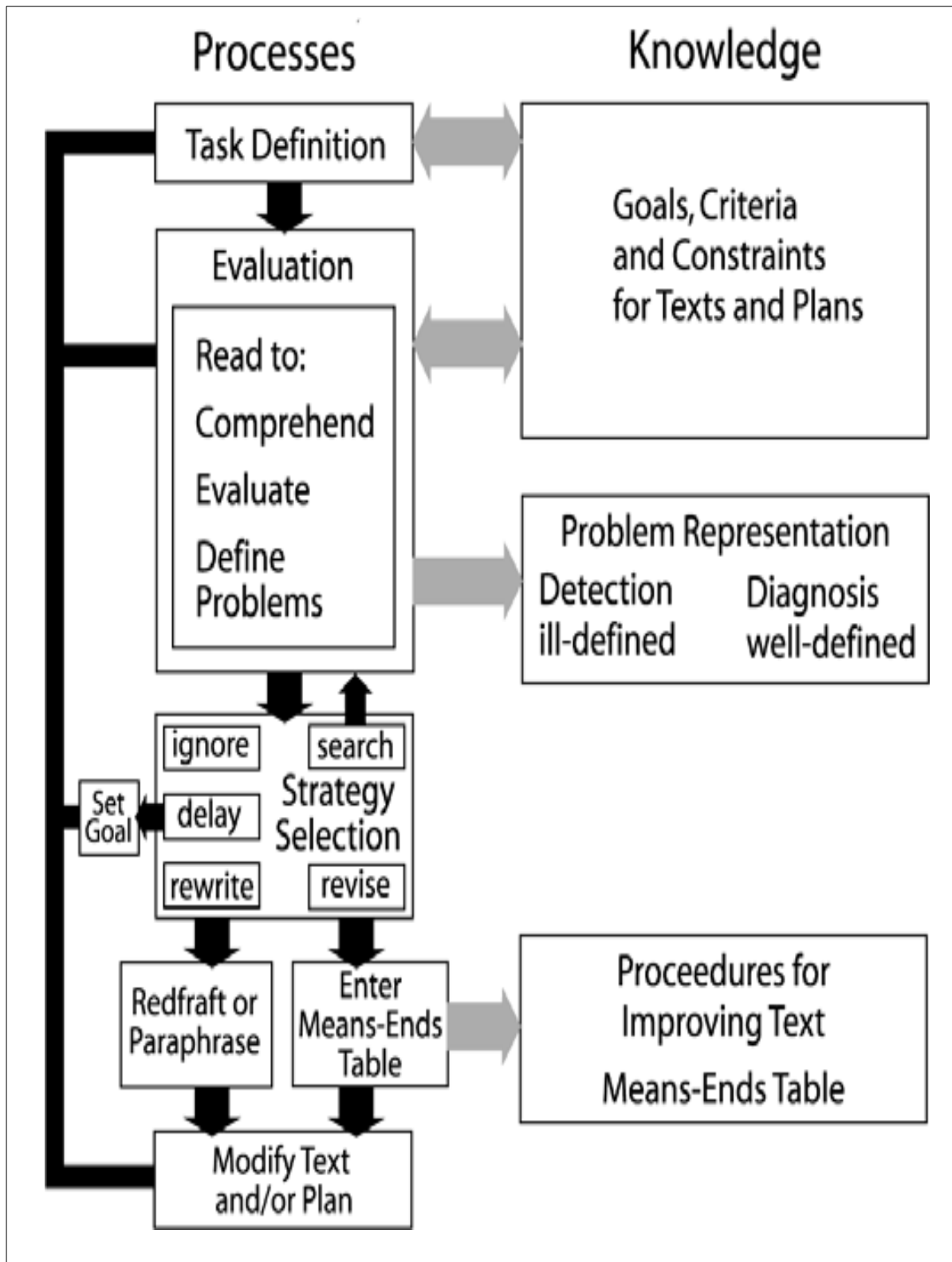


Figure 23: Flower, et al. (1986; in Becker, 2006, p. 29) Model of Key Interactions between Processes and Knowledge Used during Revision

2.2.2.3. Model of Writing Process by Hayes (1996)

In this model, the writing process has two components: the task environment and the individual. The task environment refers to elements external to the writer's cognition, and has two components: the social environment and the physical environment. The social environment is about the audience of writing, and other writers who may cooperate in the writing process. The physical environment involves the text that has been written so far and the composing medium either handwriting or word-processing (Hayes, 1996; in Heine, 2010).

Individual components include working memory, motivation and affect, cognitive processes, and long-term memory. First, working memory is the source of information, which can be used for writing. It has three types: phonological memory (it stores auditory and verbal information), visual memory (it stores visually coded information), and semantic memory (it stores conceptual information) (Weigle, 2002). Long-term memory involves different sets of schemas: task schema, topic knowledge, knowledge of audience, genre knowledge, and linguistic knowledge. Task schema includes information about task goals, demands, processes, characteristics, and standards for evaluating the success of task performance (Heine, 2010).

Motivation and affect involve other factors such as attitudes and beliefs, which are considered important for the success of writing. The more writers hold positive attitudes, the more likely they can handle the writing task. The cognitive processes are text interpretation, reflection, and text production. Text interpretation refers to all the sources of information, which help the writer to compose. These sources are listening, reading, and graphics. They can enable the writer to gather content or conceptual knowledge and discourse knowledge.

Text interpretation refers to "a process by which internal representations are created from linguistic and graphic input" (Weigle, 2002, pp. 24-25). It depends largely on reading. There are three types of reading: reading the instructions, reading source materials, and reading to evaluate.

Reading the instructions involves analysis of the topic or most importantly an essay question. This type of reading is of great importance, because it familiarises the writer with task demands. It is a research skill, which enables the writer to find and locate key words in the question. Additionally, writers can find the relationship between key words in an essay question. The analysis of an essay question or a topic is the basis for a sound organisation of a written product (Shields, 2010).

Reading to evaluate is a reflective process, which involves observing the written text and diagnosing pitfalls. It is used to revise the written product. When writers read to evaluate, they can plan recursively and set new goals depending on the criteria they set for themselves. Reading to evaluate depends on the use of knowledge of grammar, writing conventions, discourse and so on. Writers use knowledge from long-term memory about linguistic, organisational, and sociolinguistic elements to detect spelling and grammar mistakes, check ambiguities, and locate problems in text structure and content (Hayes, 1996; in Weigle, 2002).

Reading to evaluate is crucial for writing. Writers need to be able to understand the text and detect inaccuracies in order to have an accurate evaluation of writing goals. To that end, they can apply grammar knowledge, semantic knowledge, make inferences, use their background knowledge, apply genre conventions, infer their point of view and voice from what they have written, and consider audience needs (Hayes, 1996; in Heine, 2010).

The second type of reading is reading source texts. It refers to reading to write, or reading with the purpose of gathering information that is to be processed in memory and produced in a written form. Reading source texts encompasses skills in selecting and surveying sources, reading, and note taking. Selecting sources precedes the reading process. It involves consideration of the quality of sources in terms of reliability and credibility. Surveying the material involves skimming the material for length, reading titles and subtitles, consideration of features such as tables and diagrams, and reading the introduction, or conclusion.

Surveying the source can provide the reader with a holistic view of the source. Reading starts with asking questions of the selected text prior to starting the reading process, and subsequently reading with the purpose of finding answers to these questions (Taylor, 2009).

The questions asked can stem from the analysis of the essay question or the topic of writing, which could provide the writer with a set of related questions. This phase of the reading process involves the reader in a form of dialogue with the text, since the aim of reading is to find answers to the questions asked (Shields, 2010). Reading calls for note-taking skills and involves taking notes of the main ideas, taking notes of the answers found, taking notes of supporting ideas, claims and evidence (ibid.).

Reflection is “a process by which new internal representations are created from existing internal representations” (Weigle, 2002, p. 25). It refers to processing input gathered from sources such as reading, listening, or scanning graphics through text interpretation, and transforming it into internal representations (Hayes, 1996; in Heine, 2010). This can form conceptual knowledge.

Text production is a process of using internal representations to form sentences or texts (Weigle, 2002). Text interpretation, reflection, and text production are involved in drafting and revising stages of writing. Long-term memory includes information and knowledge relevant to the writing task. It has the following components: (a) task schema (i.e. information about task goals, demands, characteristics, and evaluation standards), (b) topic knowledge, (c) audience knowledge, (d) genre knowledge, and (e) linguistic knowledge (Hayes, 1996; in Weigle, 2002).

Text interpretation as a cognitive process makes Hayes’ model integrative, since it highlights the interconnectedness between reading and writing, knowing that reading skill is essential for academic writing. Moreover, the two types of

reading mainly reading source texts and reading instructions advance important skills in academic writing: research skills and reading.

Compared to other models; Hayes (1996) model focuses more on aspects which can be found in academic writing ability such as reading and research skills. This model integrates other sources of information for composing such as reading but not only long-term memory as in Hayes & Flower model (1986).

Research skills are crucial for academic writing (Taylor, 2009, Shields, 2010). They involve analysing the topic, selecting sources, analysing sources or materials, reading and reviewing. Interestingly, Hayes (1996) model expands on the requirements of writing and integrates reading strategies as key elements that can affect the writing process. This is evident in the third type of reading in this model 'reading source texts', through which reading strategies are called into action.

Clarity about the relationship between reading and writing allows us to interpret the impact of using reading strategies on the improvement of the writing product. This means that readers can develop metacognitive awareness after the use of reading strategies. They need to use metacognitive strategies such as planning reading, while-reading strategies, which involve constructing meaning while reading, and finally reviewing and reflecting strategies to construct knowledge of the text that can ultimately shape their metacognitive knowledge of text structure.

When readers prepare to read, they use strategies such as goal setting, skimming the text, and activating prior knowledge. To construct meaning while reading, readers use strategies such as organising information in the text, making predictions, making inferences, interpreting and evaluating one's understanding of the text, developing a representation of the text by integrating ideas, and monitoring understanding. Finally, reflecting on reading entails the use of strategies such as asking questions for understanding, summarising, and reading the text to achieve the goals set in the planning stage (Baker & Carter Beall, 2008). Therefore, through these strategies, writers can discern the mechanisms of written

texts, and they can extract their linguistic and organisational elements. This can have direct impact on their readiness to monitor their own writing as they read to evaluate.

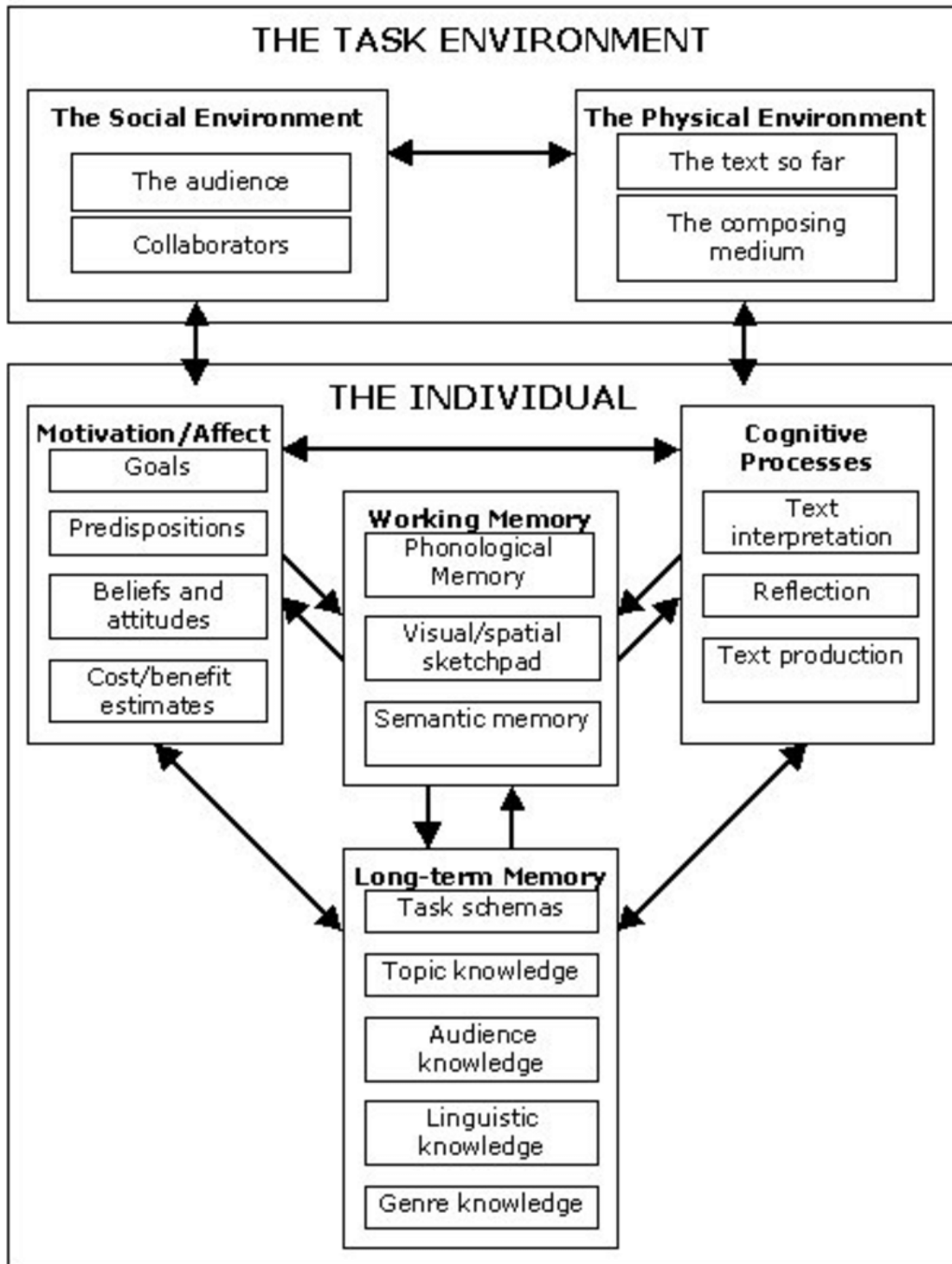


Figure 24: Hayes Model (1996; in Weigle, 2002, p. 26)

2.2.2.4. Model of Writing Ability by Bereiter & Scardamalia (1987)

In Bereiter & Scardamalia (1987; in Weigle, 2002), text composition is a problem-solving activity. Unlike Hayes & Fower (1980), text composition in this model is not directed by goals but by the processing of conceptual and discourse knowledge.

Text composition is a process of “activating thoughts in structured relations” (Bereiter & Scardamalia, 1987, p. 42; in Heine, 2010). In text composition, the writer formulates thoughts relying on two types of knowledge: discourse knowledge (i.e. knowledge of text organisation) and content knowledge (i.e. knowledge of the topic and concepts). Text composition proceeds through two main stages: knowledge-telling phase and knowledge-transforming phase. Throughout the second phase, texts written can be improved because writers get involved in processes of reflection which result in restructuring discourse knowledge using content knowledge, and regenerating content knowledge using discourse knowledge, all in a cyclical manner (ibid.).

Knowledge telling is mostly the type of composing typical of novice writers. Trained writers are more likely to engage in a knowledge-transforming type of writing. Knowledge-telling refers to writing down ideas without ‘conceptual framing’; i.e., without thinking about how to conceptualise ideas. In knowledge-telling, no planning is involved. The writer relies on the topic provided or the instructions of the assignment to obtain appropriate content. Other sources of content may include his/her discourse schema (i.e. knowledge of idea organisation).

These two sources are then used to generate ‘topic identifiers’ (i.e. content cues or ideas) and ‘genre identifiers’ (i.e. discourse cues or organisation patterns) from long-term memory. These items are assessed for appropriateness. The appropriate items are taken as notes. If not, the writer forms mental representations anew relying on what has been written so far to gather cues from memory (ibid.). Text-composition depends on linguistic and content knowledge. This means,

writers rely on linguistic knowledge to check the quality of expressing conceptual knowledge (ibid).

It can be argued that knowledge-telling phase provides initial writing plans for the knowledge-transforming phase. This is grounded on the view that in the knowledge-telling phase, writers would have gathered content and discourse cues, which help them to activate content and discourse schemas from memory. Subsequently, throughout the knowledge-transforming phase writers re-formulate ideas generated from the first phase and consider expression of concepts.

Contrary to the knowledge-telling phase, in the knowledge-transforming phase writers are involved in problem solving, goal setting, and reflection. Problem solving occurs in two spaces “content problem space” and “rhetorical problem space” (Bereiter & Scardamalia, 1987; in Heine, 2010). A content problem is about what concepts or ideas to formulate. A rhetorical problem is about how to develop these concepts in the text and how to organise relevant ideas. Problem solving enables writers to shift between these two problem spaces in order to address writing goals, to compose a text, and to develop their understanding of the topic simultaneously (ibid.).

Activating a rhetorical problem space leads to linguistic processing, while activating a content problem space leads to conceptual processing. Interaction between the two problem spaces results in problem solving processes, which enable writers to construct new concepts through linguistic processing (ibid.). In other words, writers reconceptualise ideas through writing. The more they write, the more they develop knowledge of the topic. Similarly, through conceptual processing writers can refine their linguistic cues and solve rhetorical problems (ibid.). For instance, after developing a given concept in a written form, writers can recognise appropriate organisation patterns, which help them identify and select the exact linguistic items necessary to develop the concept.

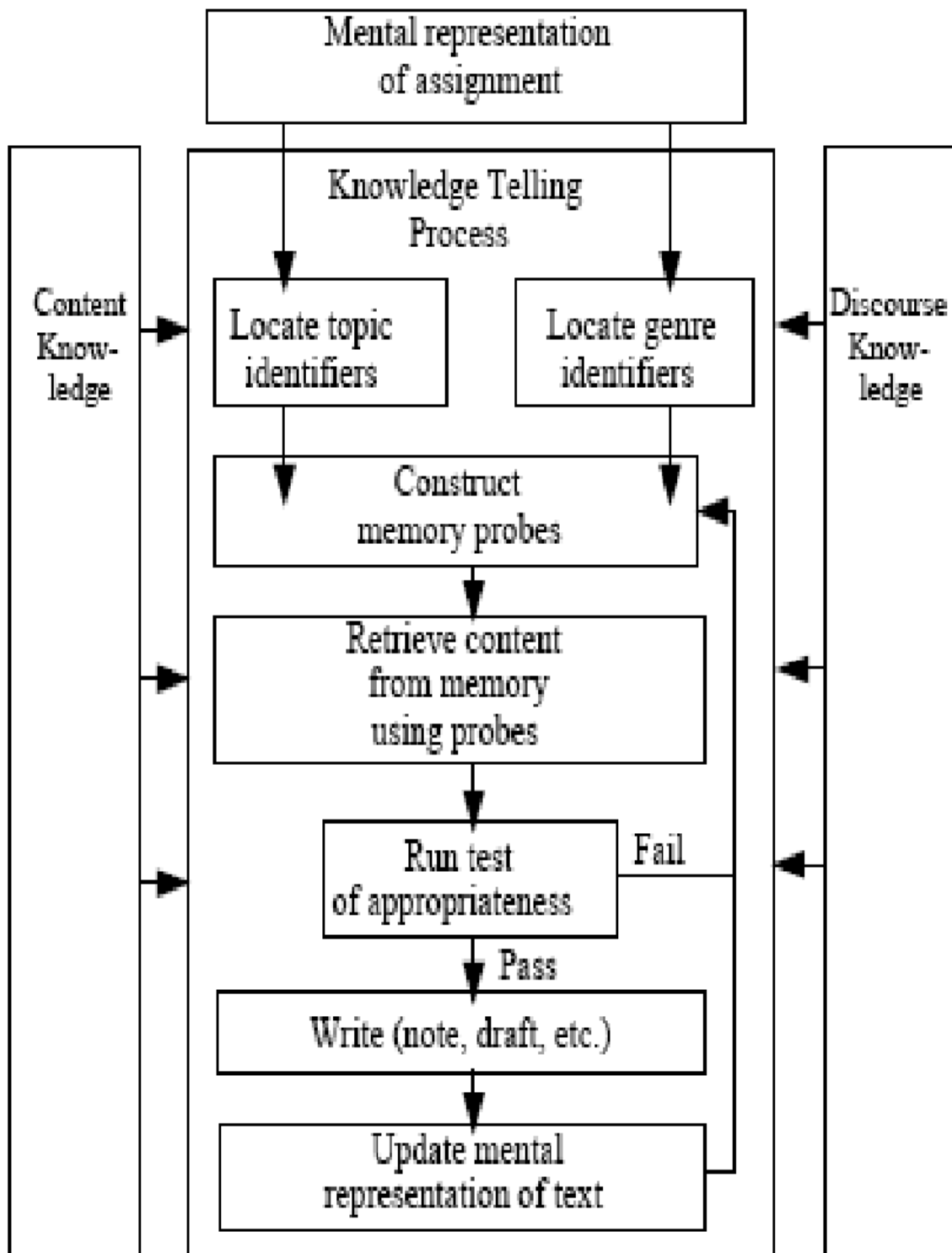


Figure 25: Structure of the Knowledge-telling Model (Bereiter & Scardamalia, 1987; in Heine, 2010, p. 46)

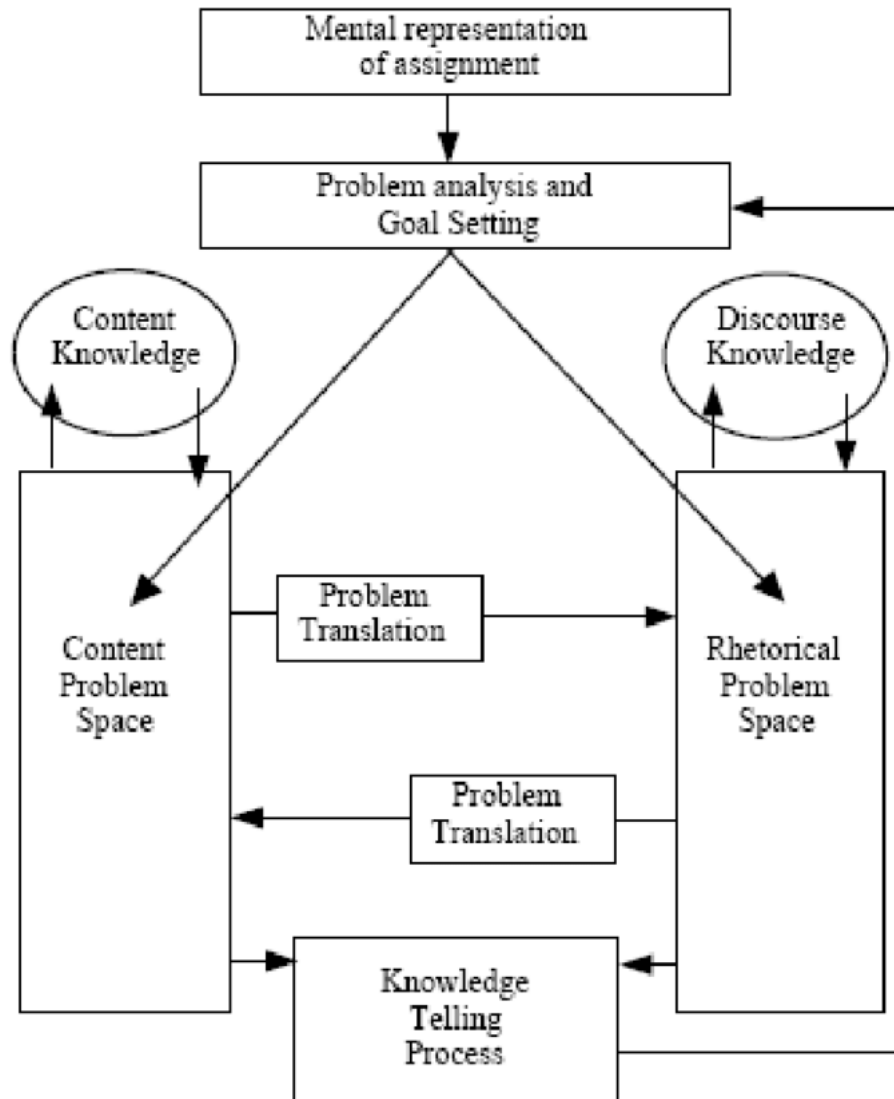


Figure 26: Structure of the Knowledge-transforming Model (Bereiter & Scardamalia, 1987; in Heine, 2010, p. 45)

Bereiter and Scardamalia’s model (1987) made a distinction between the characteristics of skilled and less-skilled writers (Bereiter & Scardamalia, 1987; Weigle, 2002; Heine, 2010). In this vein, describing writing ability as a knowledge-telling process or a knowledge-transforming process draws our attention to this difference. Following the knowledge-telling process, less-skilled writers plan less, rely on linguistic knowledge to write, rely on their background knowledge to write, describe what they know using appropriate linguistic resources, and do not reflect on their writing. Despite the use of writing strategies, they tend to:

1. Write in a linear way; i.e., they plan, take notes, write, and then edit (Raimes, 1985);
2. They sequence ideas in the text on the basis of recall (Bereiter, Burts, & Scardamalia, 1988);
3. Draw plans which are not goal-oriented;
4. Generate ideas only in the pre-writing stage as they plan;
5. They do not change their plans (Raimes, 1985);
6. Do not reset or update goals as they proceed in writing;
7. Do not read back over what they have written. If so, they re-read at final stages for editing purposes (Raimes, 1985);
8. They do not evaluate if their writing corresponds to their goals (Raimes, 1985);
9. Revise for and edit layout, grammar, vocabulary, and mechanics;
10. Do not revise content or organisation of ideas (Scardamalia & Bereiter, 1988; in Heine, 2010);

On the other hand, skilled writers use problem-solving skills to reset goals; i.e., they update their goals throughout the writing process relying on the results of monitoring. Problem solving occurs in both areas: content and discourse. This means, writers reflect on the ideas they want to write and reconstruct them. In addition, they reflect on their language in order to refine their expression of ideas.

On the basis of the knowledge-transforming model, skilled writers work through the two spaces: content and discourse spaces until they construct a production (i.e. one idea or more) which satisfies their goals. As a result, they can construct new knowledge of content and reconsider discourse patterns. They think about what to write and how to write it. Construction of knowledge occurs as writers work through these spaces. They reflect on their ideas and frame them into relevant discourse (i.e. they decide to change ideas and their sequencing in response to the discourse they are required to organise). They reframe discourse based on the content they generated (i.e. they may decide to use another genre for new ideas they generated).

Skilled writers rely on discourse knowledge to form coherent texts, and they work with content and discourse knowledge in an interconnected manner; i.e., they refine their language and organisation after reflecting on the concepts they write about. They may also develop deeper understanding of the concepts they write about throughout the writing process, which involves them in manipulating linguistic patterns. They use more problem solving as they proceed through these processes. Other characteristics include:

1. At planning stages, they set goals which match task requirements;
2. They draw plans which match the goals they set;
3. While writing, they may update, revise, and test goals depending on communicative problems they encounter during writing;
4. They refer to the goals they set until they attain them;
5. They may plan anew;
6. They use their background knowledge (Raimes, 1985). However, they do not depend on it solely. They may regenerate ideas as they write;
7. They create new plans according to the new ideas they generate (Raimes, 1985);
8. They continuously re-read what they have written (Raimes, 1985);
9. They revise for content and organisation, and edit for grammar and mechanics at final stages;
10. They consider purpose and audience (Scardamalia & Bereiter, 1983; in Zimmerman & Risemberg, 1997)
11. They shift through writing processes depending on their goals. In this way, they write in a recursive manner.

This model provides a rather detailed insight into the cognitive processes that form part of the writing activity. Besides that, it integrates insights from metacognition expressed in terms of the use of problem solving skills, which are characterised in terms of reflecting on both conceptual and linguistic knowledge as means to develop a written composition. However, it does not leave space for the role of affective factors, which may play an important role in writing.

The latter three models highlighted the role of metacognitive processes in writing; mainly, planning, monitoring, assessing writing and indicated the monitoring function of problem-solving skills. They have treated the writing process as a recursive one in which writers set goals, plan, and assess the attainment of their goals, and plan anew.

The role of cognitive processing is evident and explained in the way initial plans can be revised and new plans can be set in response to writer's communicative goals (e.g. Hayes & Flower, 1980). Furthermore, cognitive processing in Bereiter & Scaradimalia's model (1987) permits restructuring of linguistic knowledge and re-conceptualisation of content knowledge. The metacognitive processes involved are based on problem solving, and they are used to enhance writing performance and the quality of the writing product. Nevertheless, the dimension of this model is cognitive—metacognitive. This means that metacognitive operations are processed to diagnose problems and improve cognitive operations. The dimension in Zimmerman & Risemberg model (1997) is rather metacognitive—affektive through which metacognitive operations are processed to diagnose problems and enhance positive affective operations and vice versa.

2.2.2.5. Krings' (1996) Model

Krings' model (1996; in Heine, 2010) (Figure 30) relies on Hayes & Flower's model (1980) as a general framework. This model integrates processes specific to L2 writing. This model highlights the role of problem solving processes. Cognitive strategies depicted in this model are translation, organisation of plans, and revision of plans. The model centres on metacognitive processes, which are necessary for text production (Heine, 2010):

1. Specifying L2 language problems.
2. Activating L2 strategies.
3. Diagnosing the implementation of strategies, and evaluating solutions led by problem solving.
4. Selecting appropriate solutions to the problems identified.

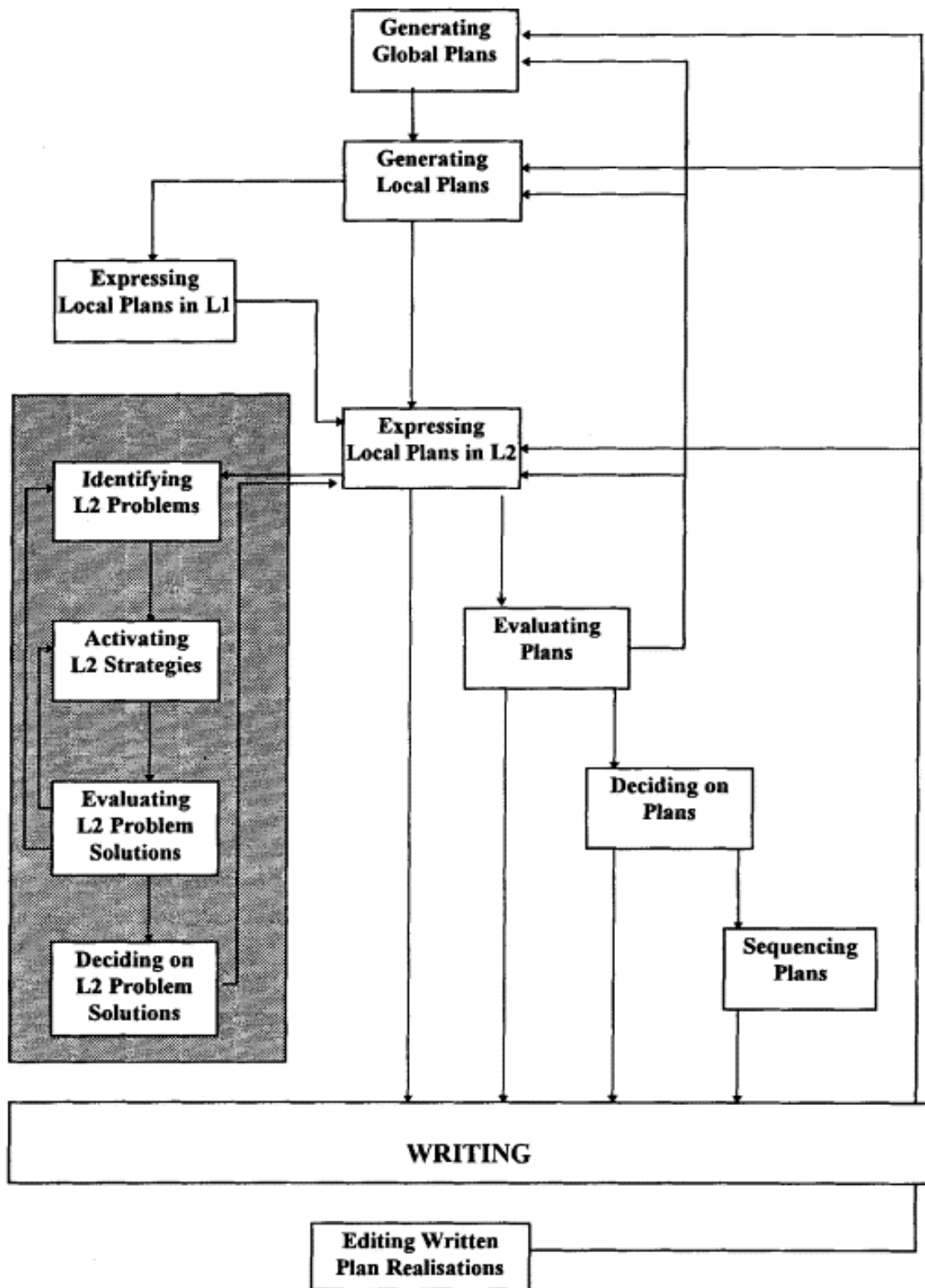


Figure 27: Kring's (1996; in Heine, 2010, p. 52) Model of L2 Writing

2.2.2.6. Chenoweth & Hayes (2001) Model

Chenoweth and Hayes (2001; in Heine, 2010) model consists of three levels:

1. Level of resources
2. Level of process
3. Level of control

The resource level is responsible for maintaining the interworking of processes necessary for planning and text production. It includes sources such as long-term memory, working memory, and reading processes. Long-term memory is the repository of linguistic and non-linguistic knowledge. Working memory is responsible for the implementation of items from long-term memory. Reading processes include resources such as reflecting, which is necessary for the internalisation and regeneration of input (Heine, 2010).

The process level comprises internal and external processes. External processes contain information about the audience, the text produced so far, and reading resources, notes, comments, and language items (*ibid.*). The environment also include dictionaries, computer interfaces, style guides, spelling checkers...etc. This is similar to task environment used in the Hayes (1996) model (Chenoweth & Hayes, 2001). The control level includes task schemas, which involves task goals and strategic knowledge responsible for the implementation and control of strategies at the process level (*ibid.*).

During revision, writers activate internal processes, which encompass meta-rhetorical, meta-strategic, and metalinguistic awareness. Other internal processes include a proposer, a translator, a reviser, and a transcriber. The proposer is responsible for the production of ideas. The translator “converts the pre-linguistic ideas into strings of language with appropriate word order and grammar” (Chenoweth & Hayes, 2001, p. 84). The reviser “evaluates both proposed and written language” and the transcriber “turns the content of the articulatory buffer into written language” (*ibid.*).

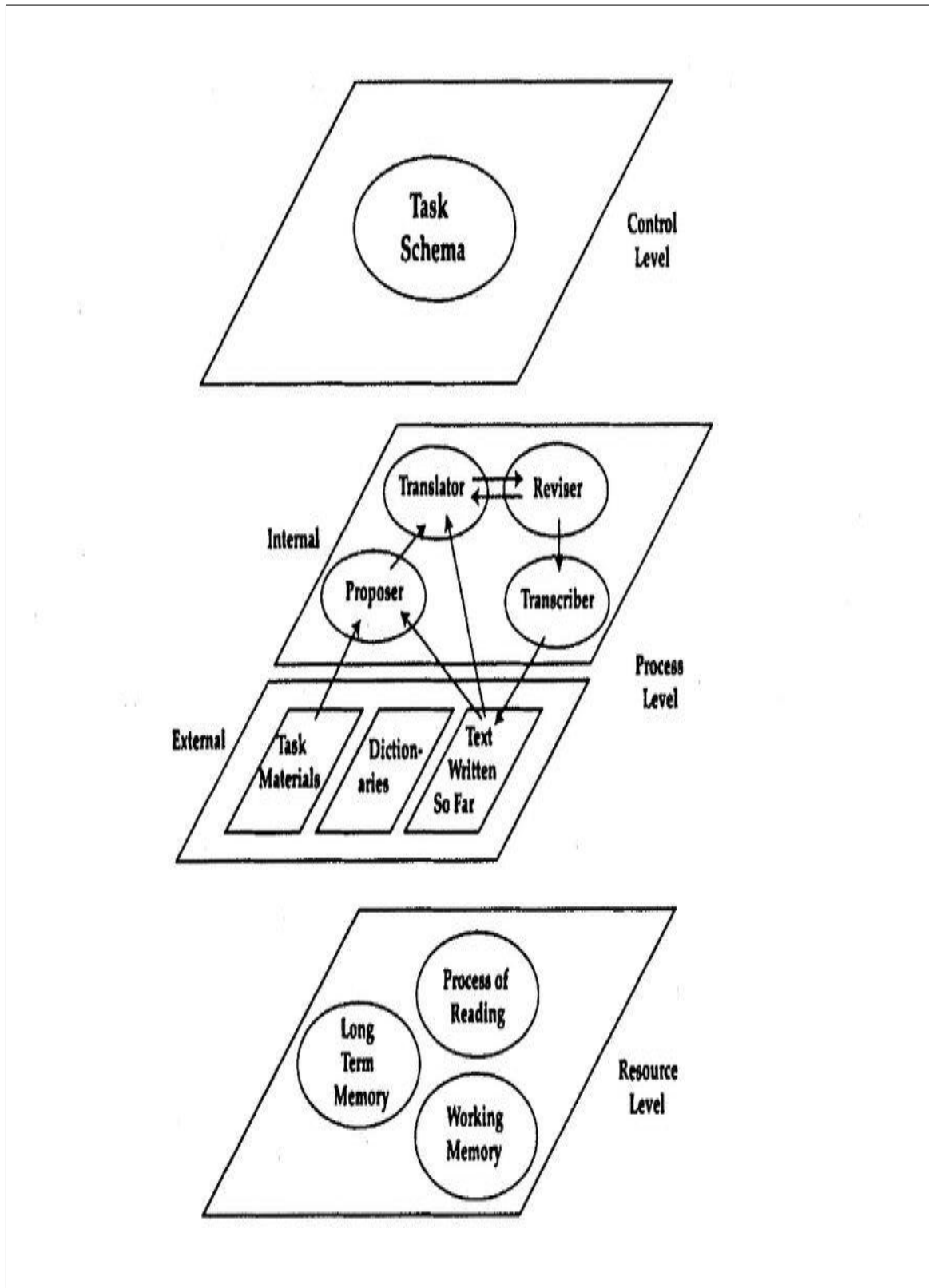


Figure 28: The Model of Written Language Production by Chenoweth & Hayes (2001; in Heine, 2010, p. 53)

2.2.2.7. Writing Model by Kellogg (1990)

This model described writing in terms of three processes that work in conjunction with working memory, visuo-spatial sketchpad, and central executive and phonological loop. The processes work simultaneously and have an impact on working memory (Becker, 2006):

- (1) Formulation: it encompasses planning and translating rhetorical goals into text,
- (2) Execution: it involves actual creation of the text,
- (3) Monitoring: it involves monitoring, reading, and editing which are utilised for revision and evaluation of the text.

2.2.2.8. Writing Model by Van der Bergh & Rijlaarsdam (1999)

The model of writing process by Van der Bergh & Rijlaarsdam (1999; in Becker, 2006) stressed the role of cognitive strategies during the writing process. Cognitive activity in writing was defined in terms of four interrelated functions:

- (1) The writing assignment,
- (2) Rereading written text,
- (3) Translation of meaning into text, and
- (4) Generation of ideas.

This model has three modules: the executive component, which involves cognitive strategies such as organising, generating, and evaluating ideas; the monitor that is responsible for the transfer of knowledge domains, either declarative or procedural; and strategic knowledge which, stocks knowledge of cognitive strategies that are implemented in response to the executive component and relying on the monitor module (ibid.). From the perspective of this model, strategic knowledge is employed in order to facilitate the workings of the monitor, which is responsible for managing cognitive activities. The latter have an executive function similar to the use of cognitive strategies in writing.

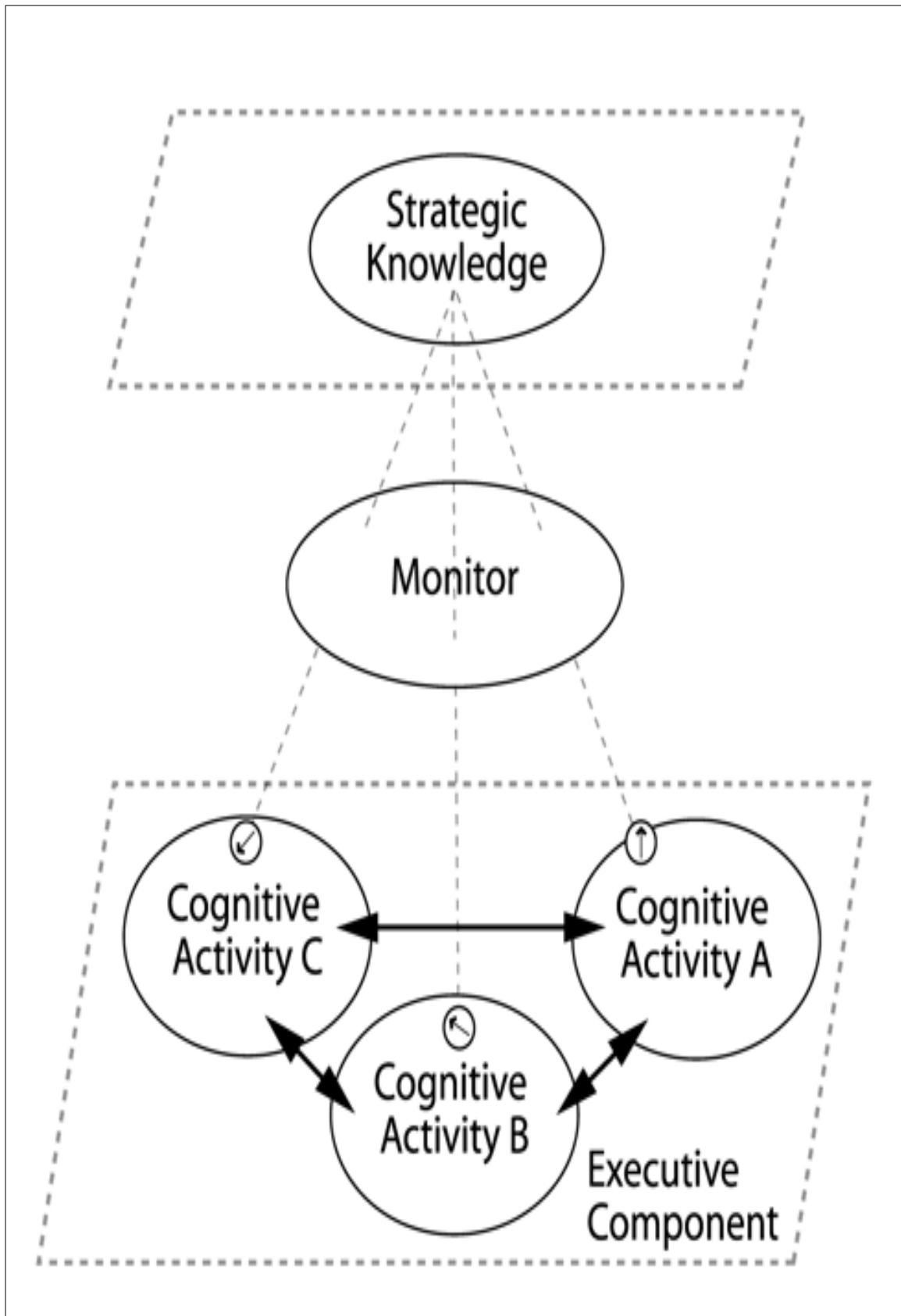


Figure 29: Writing model developed by Van der Bergh & Rijlaarsdam (1999; in Becker, 2006, p. 33)

2.2.2.9. Model of Writing Process by Zimmerman & Risemberg (1997)

The model of writing process by Zimmerman and Risemberg (1997) is the focus of this study, because it has a socio-cognitive view of self-regulation of writing that integrates the use of metacognitive strategies and the development of affective factors such as writing apprehension and writing self-efficacy. This model is based on social cognitive theory (Bandura, 1986a; in Zimmerman & Risemberg, 1997) which stresses the role that strategic self-regulation (i.e. the use of metacognitive strategies) plays in nullifying aversive reactions to writing expressed in terms of writing apprehension.

Previous models described writing processes as a self-regulation process (e.g. Hayes & Flower, 1980; Bereiter & Scardamalia, 1987), but had a strategic view of self-regulation. This model stresses the self-regulatory function of affective factors in the composing process. It highlights interconnectedness between metacognitive and affective factors in writing and suggests that affective factors can be self-regulatory. In this vein, metacognitive processes can be used to regulate affective factors during the composing process. Similarly, affective factors can be used to adjust the use of metacognitive processes during composing.

Self-regulation of writing is defined as “self-initiated thoughts, feelings, and actions that writers use to attain various literary goals, including improving their writing skills as well as enhancing the quality of the text they create” (Zimmerman & Risemberg, 1997, p. 76). Self-regulation processes in writing are grouped into three categories, which are thought to influence the composing process (ibid.):

- (1) Environmental processes: these include writers’ self-regulation of the physical and social setting in which they write. This may include choosing a conducive environment before writing, using reliable materials to improve writing skills (e.g. books, videos, or samples) or resorting to teachers or peers.

- (2) Behavioural processes: it is about self-regulation of ‘motoric’ activities associated with writing such speaking to write, using specific materials to check one’s writing progress, and rewarding oneself.
- (3) Personal processes refer to “writers’ self-regulation of cognitive beliefs and affective states associated with writing” (Zimmerman & Risemberg, 1997, p. 77). Personal processes are primarily metacognitive. They include planning writing, goal-setting, setting self-evaluative standards, using cognitive strategies, and mental imagery. This system is related to writers’ self-efficacy, which determines the load of the metacognitive and cognitive processing the writer exerts on the writing process (ibid.).

For the purpose of this study, the focus is on personal processes, which are crucial to the writing process. Zimmerman & Risemberg (1997) maintained that personal processes interact during writing. Interaction is based on a ‘feedback loop’ which is about information the writer obtains through self-monitoring. This feedback is mainly strategic. In other words, it helps writers to know how well they are handling the task and to configure the working of their strategies. Consequently, this feedback helps them to adjust their writing strategies and affective states as well. Writers construct this type of feedback throughout the composing process.

Feedback loop is a cyclical process in which writers are continuously monitoring the strategies they use. Monitoring results in modifying or improving strategies depending on their effectiveness. It can also lead to regulating affective factors in order to facilitate the composing process. This suggests that feedback can be metacognitive (i.e. the use of strategies) or affective (i.e. self-efficacy or apprehension). Strategic feedback is about how well the writer plans, manages time, set goals, and applies evaluative standards (i.e. criteria of quality work). Affective feedback is about writers’ affective states developed in response to strategic feedback.

Through self-monitoring, writers obtain feedback, which can be metacognitive (i.e. how well strategies are used) or affective (i.e. adaptive or aversive reactions to writing). They can employ affective factors to improve the use of cognitive and metacognitive strategies. For instance, they can motivate themselves relying on their self-efficacy beliefs, which may have resulted from previous successful experiences or knowledge of criteria of a task. Otherwise, they can use their cognitive and metacognitive strategies to enhance their affects during writing. As an example, writers may resort to implementing strategies in order to build positive feelings, which can enhance their self-efficacy during writing, and reduce their apprehension.

The diagnosis writers obtain after self-monitoring relies on awareness and application of self-evaluative standards, which writers gain through learning experiences, through personal satisfaction, or mainly through self-evaluation standards. These standards help writers to monitor and measure the success of the strategies they used, and they are crucial for accurate feedback on performance. Moreover, applying self-evaluative standards stimulates affective feedback, which can help writers to process metacognitive strategies.

Feedback loops are based on conceptions of self-efficacy in writing. This means, when writers are aware of writing strategies and are able to sequence them according to their goals and to task demands, they can develop self-efficacy beliefs and nullify their writing apprehension. Nevertheless, when they are unable to apply strategies, they can lose their self-efficacy beliefs and develop writing apprehension.

Of equal importance, strategic feedback can influence the outcome or writing achievement. When strategic feedback indicates improved use of strategies, the writer can develop quality written product. Similarly, when self-efficacy is strengthened after using strategies, the writer can produce output of good quality. Through feedback loops, writers continue to self-regulate as long as their use of strategies increases their perceptions of self-efficacy and weakens their writing apprehension. Thus, their sense of self-efficacy is predictive of their self-regulation

processes to write and the quality of their final product. In the same way, success in implementing self-regulation processes is predictive of writers' self-efficacy beliefs, apprehension, and the quality of the final product. To illustrate, writers who hold self-efficacy beliefs and who are less apprehensive, are able to process strategies successfully, something which has consequences on their writing product.

Unlike other models (e.g. Hayes & Flower, 1980; Bereiter & Scardamalia, 1987; Hayes, 1996), this model highlights not only the role of affective factors throughout the writing process, but their interconnectedness with the use of metacognitive strategies. Metacognitive and affective self-regulation of writing is based on the standards writers set to evaluate their performance and their ability to meet their goals. Writers who have developed knowledge of writing standards can be able to diagnose pitfalls in writing and adjust the use of metacognitive strategies, which can result in enhancing their affects, which in turn give them a motive to try new strategies and modify existing ones.

2.2.3. Assessment of EFL Writing

Assessment refers to “the variety of ways used to collect information on a learner’s language ability or achievement” (Hyland, 2003, p. 213). The field of writing assessment noticed different trends as a response to improving the quality of EFL writing assessment. This goal was directed by consideration of assessment principles, which were helpful to refine the parameters of assessment of EFL writing. Before we review the development of this field, it is important to define assessment principles.

Principles of assessment proposed in the literature are practicality, reliability, validity, authenticity, and washback. Practicality is about the logistics of the test. Specifically, a test, which is practical, has the following characteristics (Brown, 2003):

- (a) It is easy to administer;
- (b) It has time limits;

- (c) It is economical;
- (d) It has accurate and time-constrained scoring procedure.

Reliability, in Brown's terms, refers to 'consistency' and 'dependability' of a test (Brown, 2003). It can take different forms, which are student-related reliability, rater reliability, and test reliability. First, student-related reliability is about physiological or psychological factors (e.g. illness, tiredness, or anxiety) that can affect students' performance on the test. Student-reliability is an important principle in assessment of writing. It highlights the role of affective measures in writing. This explains why models which do not integrate affect to explain writing development have been criticised (Wilkinson, 1983; in Hamp-Lyons, 1990).

Second, rater reliability concerns the preciseness of the scoring procedure. It can be inter-rater reliability, which concerns consistency of a score yielded by two or more scorers. Intra-rater reliability concerns preciseness of scoring grids. To optimise reliability, reader training and the use of scoring grids were suggested (Newcomb, 1977; in Hamp-Lyons, 1990). Test reliability involves test-administration and test characteristics. Applebee (1982; in Hamp-Lyons, 1990) stresses the impact of reliability on test performance. It is argued that task variables including time, test design, and test-taker state need to be controlled to enhance task performance.

Validity refers to "the extent to which inferences made from assessment results are appropriate, meaningful, and useful in terms of the purpose of the assessment" (Gronlund, 1998, p. 226; in Brown, 2003). It has different types: content validity, construct validity, criterion-related validity, and face validity. In performance-based tests, validity has be present in the following components: the task, the writer, the scoring procedure, and the reader (Hamp-Lyons, 1990).

To start with, content validity "samples the subject matter about which conclusions are to be drawn", and "requires the test-taker to perform the behaviour that is being measured" (Brown, 2003; p. 22). Construct validity means that "the test reflects the psychological reality of behaviour in the area being tested" (Hamp-

Lyons, 1990, p. 71); and its items are devised based on a definition of the construct being measured.

Criterion validity is “the measurable relationship, usually correlational, between a particular test of writing and various other measures” (Hamp-Lyons, 1990, p. 72). A test, which has criterion validity, seeks to fulfil a specific criterion. The criterion can be inferred from test items or test instructions. This type of validity can be assessed using primary-trait scoring.

Face validity refers to “the degree to which a test looks right, and appears to measure the knowledge or abilities it claims to measure, based on the subjective judgement of the examinees who take it, the administrative personnel who decide its use, and other psychometrically unsophisticated observers” (Mousavi, 2002, p. 244; in Brown, 2003). Performance-based tests have more face validity than indirect tests (Hamp-Lyons, 1990). A test, which has face validity, is likely to be (Brown, 2003):

- a) well-devised in terms of format and layout;
- b) sufficiently timed;
- c) devised with explicit items;
- d) directed with specific instructions;
- e) highly content-valid; and
- f) Reasonably challenging.

Authenticity refers to “the degree of correspondence of the characteristics of a given language test task to the features of a target language task” (Bachman & Palmer, 1996, p. 23). Performance-based tests have more authenticity than indirect tests of writing. Washback is defined as “the effect of testing on teaching and learning” (Hughes, 2003, p. 1). It denotes the usefulness of the test in terms of the feedback it provides. To maximise the potential of washback, formative assessment (e.g. providing written comments, correction, or follow-up revision) has to be provided to the students to increase their opportunity to reflect on their responses and to know their strengths and weaknesses (Brown, 2003).

2.2.3.1. Development of Assessment of EFL Writing & Self-assessment

In the psychometric era, the field of writing assessment centred on principles of reliability. Testing was the approach implemented. Testing belongs to the perspective of psychometric measurement, which followed educational measurement theory and positivist philosophy. The principle of reliability is the main tenet of psychometric testing. Standardised testing, which involved the use of testing tools such as multiple choice was prevalent. (Hamp-Lyons, 2000)

Indirect tests were preferred because they gave consistent answers that could be easily scored. In this regard, writing performance was seen as “the sum of a finite number of identifiable and controllable elements” (Hamp-Lyons, 2000, p. 11). However, the effect of indirect tests on assessment and learning was mitigated. Consequently, concerns about validity and authenticity expanded, and educators opted for direct tests, which could reflect a valid definition of the construct writing ability.

Direct testing “makes human writers actually perform the skill on which they are being assessed and do give human readers that performance to judge” (ibid.). It came into vogue with the development of process approaches to writing. Direct testing belongs to alternative assessment practices, which differ from traditional assessment in a number of ways (ibid.):

- a) it involves open-ended responses;
- b) the tasks are communicative and reflect real-world demands;
- c) it is based on criteria for scoring;
- d) it has washback potential; i.e., it provides more feedback;
- e) it is process-oriented;
- f) it requires reader training (Hyland, 2003)
- g) It has an impact on students’ intrinsic motivation.

Direct assessment is performance-based assessment through which students “are measured in the process of performing the targeted linguistic acts” (Brown,

2003, p. 11). Students are “assessed as they perform actual or simulated real-world tasks” (ibid.). Direct tests of writing were able to fulfil the principle of validity.

Nevertheless, practicality remained weak in performance-based tests, since they were time-consuming. Moreover, reliability was questioned because the scoring procedure depended on the use of holistic rating scales, which involved the judgement that trained readers provide. Despite being efficient and timesaving, holistic scoring was not considered as reliable. Thus, to compensate for unreliability of scoring, reliability was maximised using more than one reader.

Authenticity was also questioned, because writing prompts are pre-structured, and time is restricted. This was seen as contradictory to real-world writing tasks. To increase authenticity, options were suggested to give writers the freedom to select topics, which are interesting to them (Hamp-Lyons, 2000).

Despite all the adjustments, concerns about reliability and validity were still growing. Holistic scales were replaced by analytic scales, which fulfilled higher reliability. The scales were required to follow a careful definition of the construct being measured. Analytic scoring achieved a degree of reliability. However, it was still questioned since human raters are involved in the measurement process. This has led to a move towards computer-assisted scoring (e.g. DIALANG) for more reliability.

Referring back to scoring scales, they were developed based on the definition of the construct and a description of writing proficiency. Language proficiency represents aspects of language ability to measure (McNamara, 1996). The specific abilities are elaborated through scale descriptors. There are three types of scoring procedures used in L2 assessment, which follow criterion-referenced scoring:

1. Holistic scoring: it involves assigning scores relying on overall impression of the quality of the product (Weigle, 2002). This type of scoring is practical but less reliable and valid.

2. Primary-trait scoring: it involves assigning a score based on a predetermined criterion. They are “designed to clearly define the specific topic and genre features of the task being judged” (Hamp-Lyons, 1991; in Hyland, 2003, p. 229).This type of scoring is practical, moderately reliable, and involves “rating a piece of writing by just one feature relevant to that task” (ibid., p. 230).
3. Analytic scoring: it involves assigning sub-scores to a set of descriptors, which define the criterion being measured.

With reference to analytic scoring, assessment of academic writing integrates different criteria. Knowing that academic writing has discourse conventions, which are tied to sociological and cultural aspects of English (Leki, 1999; in Weigle, 2002), Hamp-Lyons (1991; in Brown & Lumley, 1994) suggested a set of fundamental criteria for assessing EFL academic writing:

- a) rhetorical organisation;
- b) awareness of audience/register;
- c) awareness of discourse conventions;
- d) using criteria which reflect course objectives; and
- e) using analytic scales

Concerns about learner autonomy and self-directed learning gave rise to self-assessment as complementary to teacher assessment. Self-assessment involves students in goal setting and monitoring their own writing process. Self-assessment of writing fulfils different assessment principles; namely, content validity, construct validity, authenticity and washback. In EFL, Brown (2003) has identified possible tools for self-assessment of writing:

- a) Portfolio assessment: it is a collection of writing samples.
- b) Journals: it is a type of free writing for reflection.
- c) Checklists: they are used for assessment of specific performance and are criteria-based.

- d) Rating scales: they are used to assess general performance and have the form of a Likert-scale.
- e) Goal setting: it refers to writing goals to monitor and maintain improvement of performance.
- f) Using software or online assessment for correction of written composition.
- g) Student-generated tests: it is when students generate a prompt and develop it.
- h) Revising composition by proofreading or peer editing.

The following section reviews language proficiency models, because they can provide a thorough overview of the demands of writing and can be used to explore assessment of writing in terms of designing tests and selecting assessment criteria. The primary purpose of language proficiency models is to give a definition of communicative ability, and they can be useful for practical purposes such as reviewing criteria to be used for scoring grids and self-assessment checklists.

2.2.3.2. Language Proficiency Models

Language proficiency models were developed based on the conceptualisation of the construct “writing ability”. In other words, they are an articulation of the construct (Fulcher & Davidson, 2007). A description of a language proficiency model helps to outline the linguistic and strategic demands of second language writing.

Language proficiency models are reviewed to elaborate on the nature and demands of writing proficiency. These models clarify the nature of communicative competence or communicative language ability in productive skills such as writing. Different language proficiency models exist in the literature on second/foreign language proficiency.

The conceptualisation of these models followed the shifting sands of language theories and language learning theories. McNamara (1996) claimed that all models are based on a framework, which follows three dimensions; namely, a definition of what language ability is (i.e. “a model of knowledge”), ability for use

or a specification of the factors that influence ability to communicate (i.e. “a model of performance”), and a definition of language use (i.e. “a model of actual language use”). On the other hand, Fulcher & Davidson (2009) understood language proficiency in terms of communicative competence, which was defined through a model of knowledge and a model of performance.

To start with, communicative competence enables individuals to “convey and interpret messages and to negotiate meanings interpersonally within specific contexts” (Brown, 2000, p. 246). Canale & Swain (1980, p. 1; in Fulcher & Davidson, 2007) defined it as: “the interaction between grammatical competence, or the knowledge of the rules of grammar, and sociolinguistic competence, or knowledge of the rules of language use”.

‘Communicative competence’ or ‘communicative language ability’ involves language knowledge and a set of underlying factors that relate to students’ ability to use the language. This is referred to as ‘ability for use’, which relates to factors that affect ability to communicate (Fulcher & Davidson, 2007).

a. Canale and Swain’s Communicative Competence

Canale and Swain’s (1980) model of communicative competence encompasses two components:

- (a) Communicative competence is a model of knowledge. It includes grammatical knowledge, sociolinguistic knowledge, and strategic competence. Grammatical knowledge is knowledge of grammar, morphology, syntax, and vocabulary. Sociolinguistic knowledge or knowledge of what is appropriate socially and culturally. Strategic competence as a component refers to “the verbal and nonverbal communicative strategies that may be called into action to compensate for breakdowns in communication due to performance variables or due to insufficient competence” (Canale and Swain, 1980, p. 30; in Brown, 2000).

(b) Actual communication: it refers to performance of knowledge in actual language performance (Fulcher & Davidson, 2007).

Canale & Swain (1980, p. 6; in Fulcher & Davidson, 2007) see that communicative competence is different from communicative performance. Communicative competence is “the interaction between grammatical competence, or knowledge of the rules of grammar, and sociolinguistic competence, or knowledge of the rules of language use”, while communicative performance refers to actual use of language in communicative situations.

b. Kramsch’s Competence Model

This model was developed by Kramsch (1986; in Fulcher & Davidson, 2007) who claimed that constructing speaking performance or “talk” is a result of interaction between participants in a social context. Interactional Competence model draws from research in discourse analysis, and mainly conversation analysis. A new type of competence is the feature of this model. This competence focuses on “how individuals interact as speakers and listeners to construct meaning in what has been called talk-in-interaction.” (Fulcher & Davidson, 2007, p. 49).

This type of competence brings together the roles of the speaker as both a speaker and as an interlocutor in interaction, and renders assessment of the speaker dependent on the performance of the interlocutor. Therefore, it does not “reside in an individual” but it is related to “the interactive practice in which it is (or is not) constituted” (Young, 1998, p. 7, in Fulcher & Davidson, 2007). Applied to writing, it can be said that the model highlights the role of socio-linguistic competence, which enables the writer to respond to audience needs.

c. Bachman’s Communicative Language Ability (CLA)

CLA is a model developed by Bachman (1990) and includes three components: language competence, strategic competence, and psycho-physiological mechanisms. Language competence is language knowledge, which comprises two types of competence: organisational (it encompasses morphology, syntax, vocabulary, cohesion, and organisation), and pragmatic competence (i.e. sociolinguistic competence and illocutionary competence).

Strategic competence is the capacity to deploy language knowledge in context of communication. Strategic competence is responsible for managing the use of components of language knowledge. It includes assessment, planning and execution components. It can help to select which language components need or need not to be utilised in a certain context. Psycho-physiological competence refers to the “neurological and psycho-physiological processes involved in the actual execution of language as a physical phenomenon” (Bachman, 1990, p. 84; in Fulcher & Davidson, 2007).

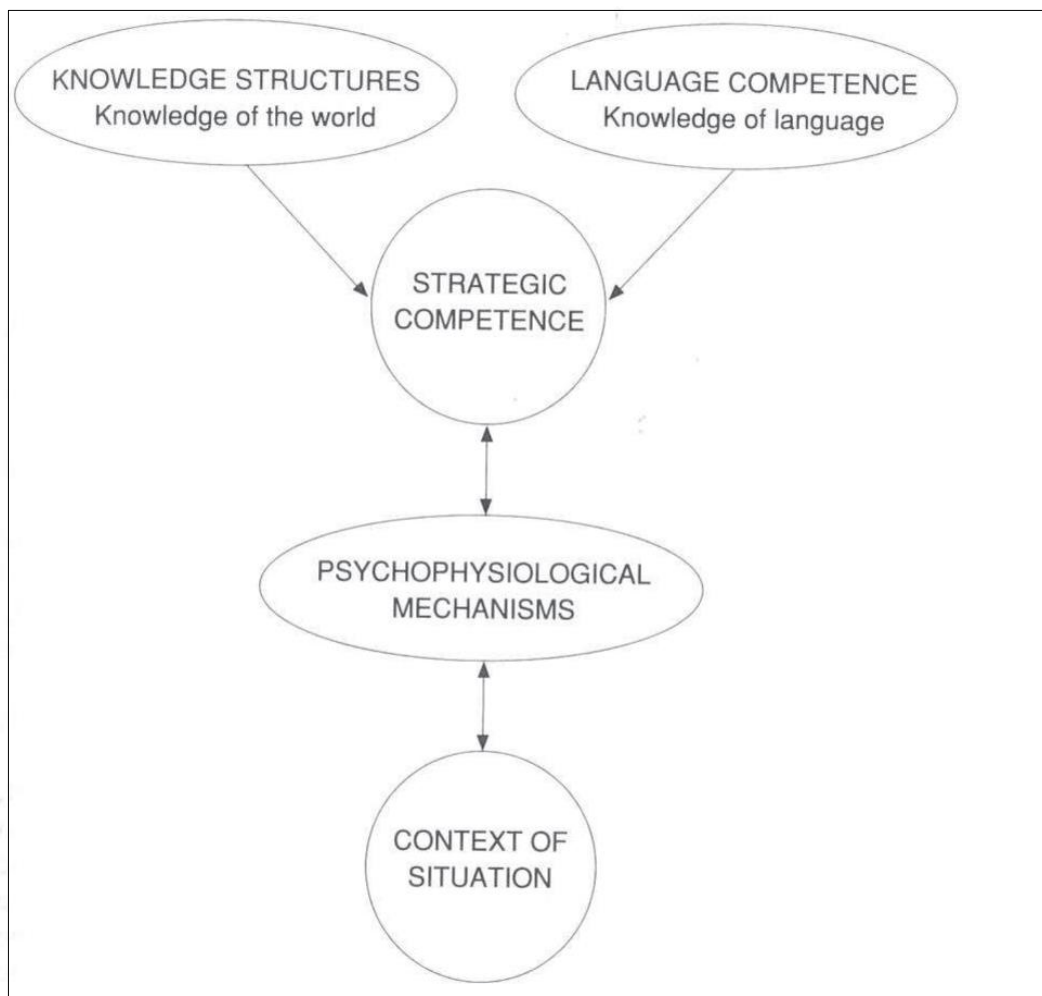


Figure 30: Components of Communicative Language Ability in Language Use (Bachman, 1990; in Fulcher & Davidson, 2007, p. 2)

Bachman’s model of CLA is different from the other models, because it makes a difference between ‘skill’ and ‘knowledge’. ‘Knowledge’ component is evident in language competence and skill is referred to in strategic competence.

This model “attempts to characterize the processes by which the various components interact with each other and with the context in which language use occurs” (Bachman, 1990, p. 81; in Fulcher & Davidson, 2007).

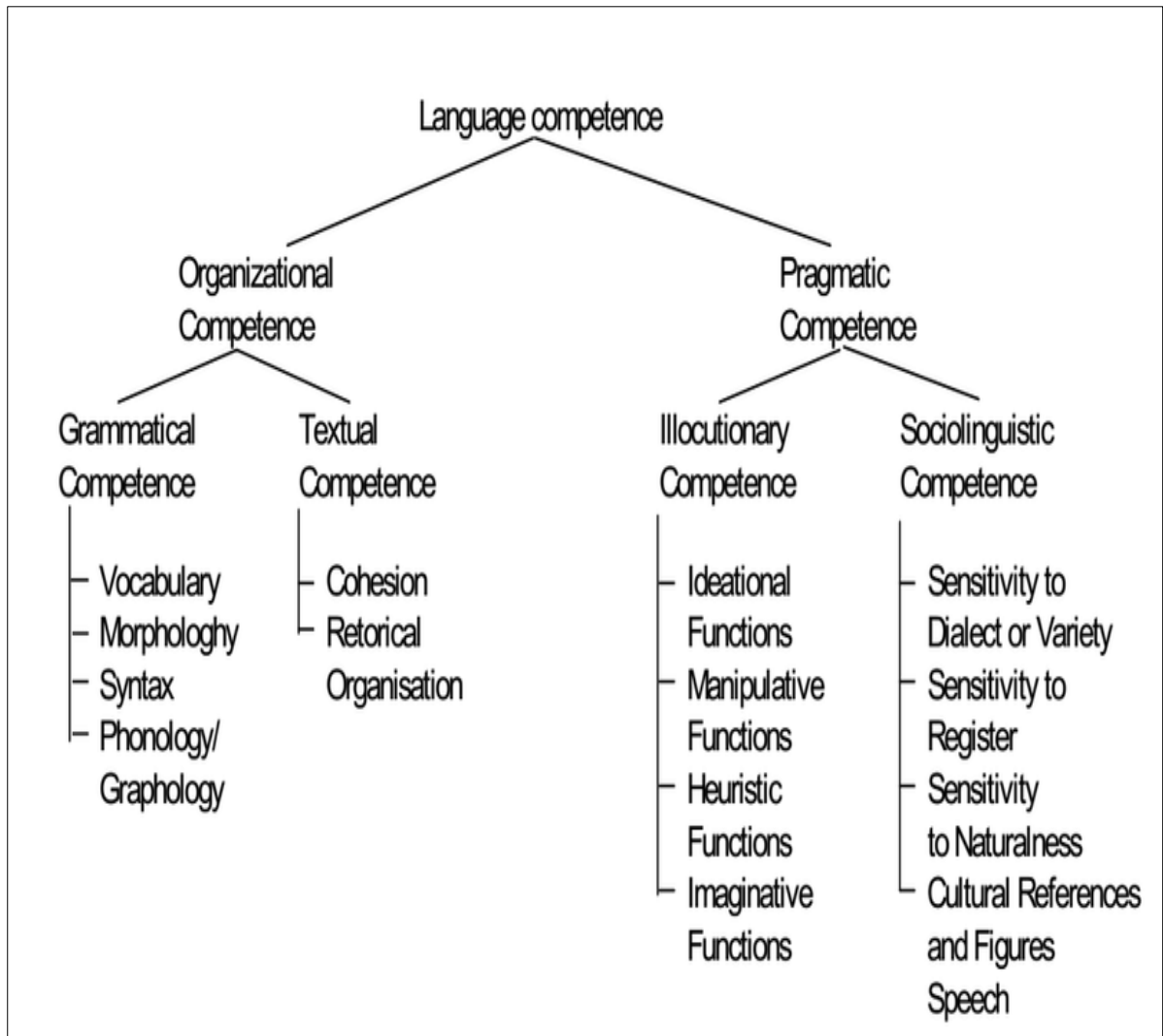


Figure 31: Components of Language Competence (Bachman, 1991; in Fulcher & Davidson, 2007, p. 43)

The model was restructured in Bachman & Palmer (1996), which introduced some explicit changes (Fulcher & Davidson, 2007):

- a) the inclusion of affective factors in language use,
- b) topical knowledge was identified to refer to ‘knowledge structures’,
- c) strategic competence was reconceptualised as a set of metacognitive strategies.

d. Celce-Murcia, et al.’s Communicative Competence

Celce-Murcia et al. (1995; in Fulcher and Davidson, 2007) developed a model of communicative competence which includes discourse competence, actional competence (i.e. what is necessary to reach communicative goals), socio-cultural competence, linguistic competence (i.e. knowledge of lexis, phonology, syntax, and morphology), and strategic competence (i.e. skills needed to monitor writing). Celce-Murcia et al. (1995, p. 5) developed this model to “generate detailed content specifications for CLT that relate directly to an articulated model of communicative competence”.

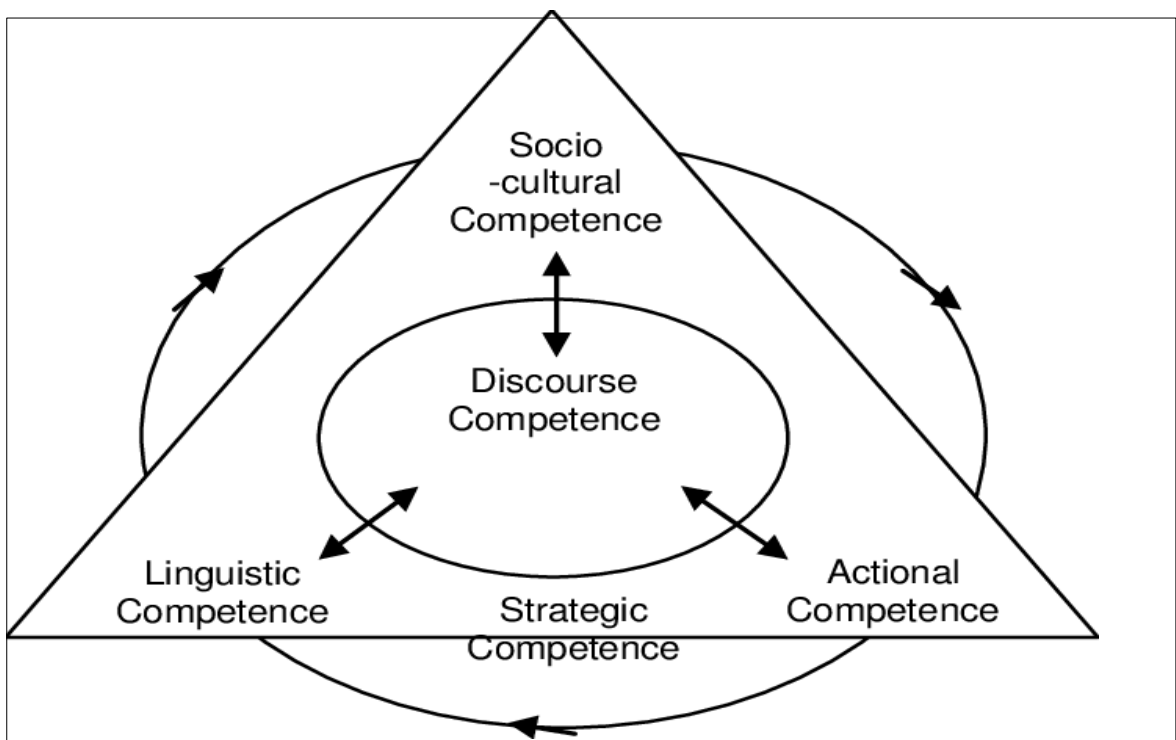


Figure 32: The Celce-Murcia et al. Model of Communicative Competence (1995; in Fulcher & Davidson, 2007, p. 47)

e. Bachman & Palmer’s Model of Communicative Language Ability (CLA)

Bachman & Palmer (1996) restructured the first model and made significant changes reported in McNamara (1996; in Fulcher & Davidson, 2007):

- a) inclusion of affective factors, which can determine the quality and type of language used to express meaning,

- b) introduction of topical knowledge, a component not seen as significant by Hughes (1989; in Weigle, 2002) for assessment of language ability,
- c) Reference to metacognitive strategies by conceptualising strategic competence.

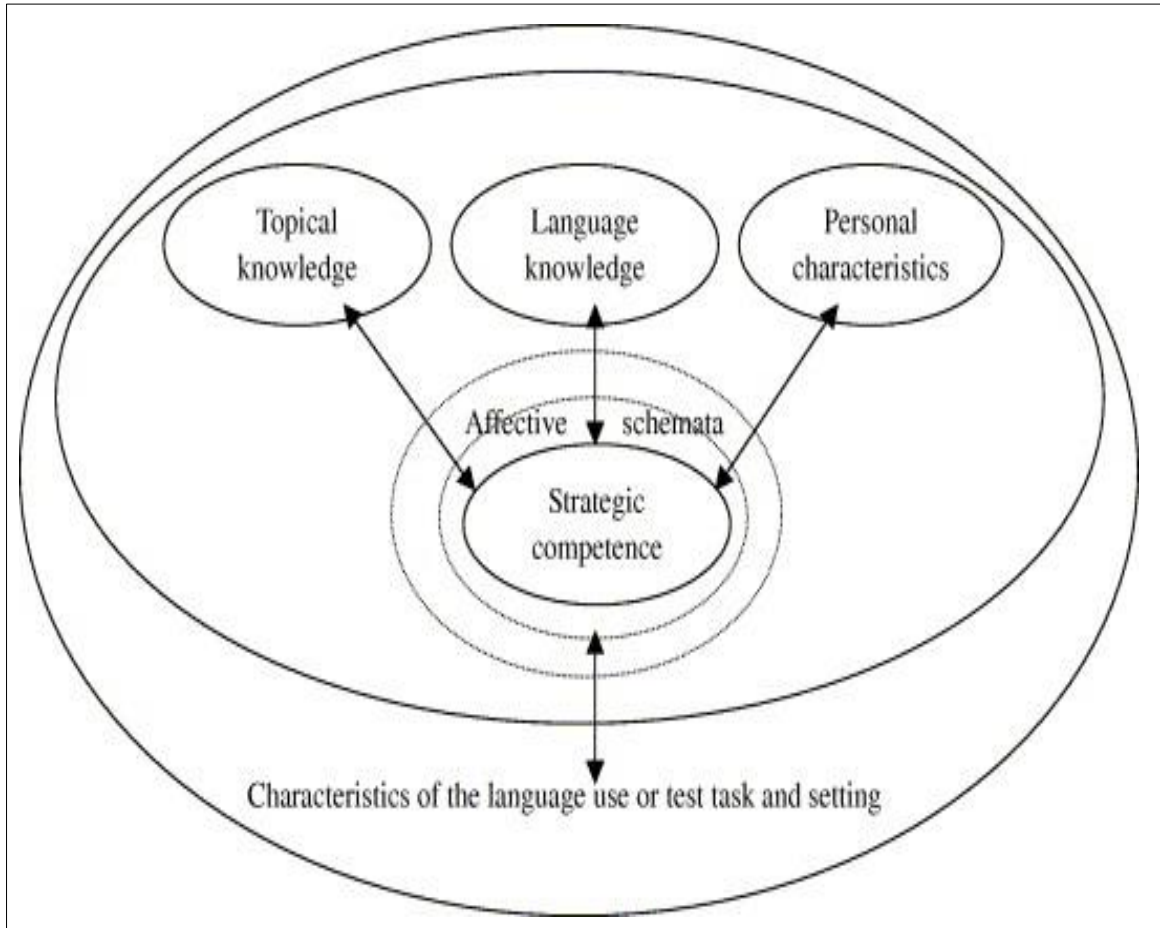


Figure 33: Some Components of Language Use and Language Test performance (Bachman, & Palmer, 1996; in Fulcher & Davidson, 2007, p. 46).

CLA is a useful model to consider for assessment of EFL writing, because it speaks of a range of competences that define linguistic ability, and it integrates writing strategies as part of the definition. It is different from the other models because it makes a clear difference between language knowledge and performance. In this research, the definition of the construct writing ability was based on the conceptualisation this model articulates.

Moreover, self-assessment was approached from this angle; i.e., the activities included criteria related to language knowledge (e.g. content,

organization, grammar, register, and mechanics) and to the use of metacognitive strategic (i.e. planning, monitoring, and reviewing strategies). In addition, the scoring grid includes scales, which reflect the components of language ability specified in the model.

In sum, language proficiency models provide the theoretical foundation for describing writing ability. Interestingly, they describe the construct language ability and serve purposes for assessment of writing, because they help us navigate the criteria for assessing writing ability. Moreover, they help us to make inferences about the abilities of test-takers. Therefore, based on these writing proficiency models, we can distinguish the following criteria for assessment of EFL writing:

- Grammatical competence: it is knowledge of grammar and vocabulary;
- Textual or discourse competence: it is knowledge of text organisation, genres, and styles;
- Sociolinguistic competence: it is knowledge of audience and register;
- Strategic competence: it is knowledge of and ability to control psycholinguistic management processes of writing.

2.3. EFL Writing and Affective Factors

It has been claimed that EFL writing is extremely influenced by affective factors. This impact was discussed in different writing process models. For instance, Hayes (1986; in Heine, 2010) emphasised the role of motivation in enhancing the quality and process of writing. To add, Zimmerman & Risemberg (1999) discussed the interconnectedness between metacognitive writing processes and affective factors, and highlighted the mechanisms by which this relationship occurs. On this basis, one of the main affective factors found to influence writing are writing self-efficacy and writing apprehension. Although writing apprehension is the variable of interest in this study, a discussion of self-efficacy beliefs has to be addressed first, since it help us to understand the relationship between apprehension and writing. Moreover, self-efficacy is a variable, which is included in models of writing that follow a socio-cognitive perspective, and it presents major effect on the writing process and on writing apprehension.

2.3.1. Writing Self-efficacy

Knowing that L2 writing is “strategically, rhetorically, and linguistically different in important ways from L1 writing” (Silva, 1993, p. 669), it bears additional challenges that can be cognitive, affective, and social (Cumming, 2012). Therefore, affective variables such as self-efficacy become critical in the L2 composing process.

Self-efficacy was defined as “perceptions of one’s own capabilities to plan and implement actions necessary to attain designated levels of writing on specific tasks” (Zimmerman & Risemberg, 1997, p. 77). Mayer (2001) defined it as “a person’s judgement of his or her capabilities to accomplish some task” (p. 96). Self-efficacy is a motivation aspect. It is a concept, which belongs to a socio-cognitive perspective. From this perspective, students are viewed as active agents who continuously self-regulate their learning (Bandura, 1977).

The ability to self-regulate learning can enhance students’ self-efficacy. At the same time, students who have strong beliefs in their capability are more able to apply and sequence strategic self-regulation processes (Zimmerman & Bandura, 1994). In other words, students’ beliefs in their capabilities can affect the way they use writing strategies, and at the same time the way they implement writing strategies impacts on their affects.

Bandura (1986a; in Pajaras, 2003, p. 140) described self-efficacy as “a mediating mechanism of personal agency”. It “mediates between prior influences that are the sources of its creation and subsequent behaviour” (ibid.). In other words, self-efficacy results from success in doing a given task, and enhances its subsequent performance. This idea draws our attention to sources of self-efficacy (Zimmerman & Bandura, 1994; Pajaras, 2003):

- a) Success in task performance;
- b) Performing tasks which are motivating to the student;
- c) Positive belief in one’s own capabilities;
- d) Ability to self-regulate task performance;
- e) Knowledge of standards of good work;

- f) Ability to judge the effectiveness of ongoing performance patterns;
- g) Knowledge of the expected outcomes; and
- h) Knowledge of the the criteria which lead to the expected outcome.

As one of the main sources of self-efficacy, Zimmerman & Bandura (1994) mentioned “self-evaluative involvement” and identified its basic source: “adaption of standards” (p. 847). Adaption of standards of performance and efficacy finds place is applying self-regulation processes such as self-assessment (Zimmerman, Bandura, & Martinez-Pons, 1992). These standards develop to become personal; i.e., writers use them to plan, set goals, monitor, and assess, and they can refer to them to assess their success as self-regulated writers (Zimmerman & Bandura, 1994).

McCarthy, Meier, & Rinderer (1985) referred to self-assessment as the source of acquiring self-evaluative standards. Consequently, the application of self-evaluative standards greatly contributes to the development of goal-setting strategies, which can be process-oriented or product-oriented (Schunk & Swartz, 1993). Moreover, self-evaluative standards enhance self-efficacy beliefs because writers know what strategies to use to reach specific outcomes and build a sense of “anticipated self-satisfaction” (Zimmerman & Bandura, 1994, p. 847; Zimmerman & Schunk, 1989). Self-evaluative standards guide writers in setting goals, a process that can positively enhance writers’ positive attitudes to their performance (Zimmerman, Bandura, & Martinez-Pons, 1992). Applied to writing, self-efficacy predicts students’ skills in composing, monitoring, processing of goals, processing of strategies writing achievement, writing self-concept, and writing apprehension (Zimmerman & Kitsantas, 1997; Pajaras, 2003).

Self-efficacy is critical during the composing process, because it helps writers to manage apprehension, which can debilitate the writing process (Teng, Sun, & Xu, 2017). Researchers such as Bruning et al., (2013), Locke & Johnston (2016) argued that positive self-efficacy beliefs enable writers to cope with challenges during writing, process strategies more effectively, and achieve their

goals. In this vein, Kim et al. (2015) linked positive self-efficacy beliefs to improved use of strategies during the writing process.

On the other hand, Teng & Zhang (2017) related low self-efficacy beliefs to lower metacognitive strategy processing at the level of monitoring and evaluation. Teng et al. (2017) related self-efficacy to both linguistic proficiency and strategic capacity. To add, the degree of self-efficacy has affective consequences, and can engender either positive or negative affective reactions such as motivation or apprehension.

Following this conceptualisation, writing self-efficacy has two facets: linguistic self-efficacy and strategic self-efficacy (Teng, et al., 2017). Linguistic self-efficacy refers to students' judgements about their capability to use linguistic items such as grammar, vocabulary, and mechanics in the composing process. Teng et al. (2017) related this aspect of self-efficacy to writing models (e.g. Hayes & Flower, 1980) which define the composing process as a sequence of cognitive operations implemented in order to generate and locate linguistic elements in terms of retrieval, translation, and organisation to reach a communicative goal.

On the other hand, self-efficacy was defined as strategic, and this dimension refers to students' judgment about their capability to implement metacognitive strategies such as planning, monitoring, evaluating, and goal setting (ibid.). Another proposed dimension of self-efficacy is performance self-efficacy (Teng et al., 2017). It refers to students' judgments about their ability to fulfil writing tasks in the classroom as a social community.

This view is grounded on social cognitive perspectives of writing that highlight the role of environmental self-regulation in shaping writers' strategic choices and affects. It was maintained that writing self-efficacy is directly related to metacognitive monitoring and metacognitive control of writing (Usher, 2012). Moreover, writers draw upon sources that may increase their motivation, and ultimately that can lead to effective monitoring during the writing process (Teng & Zhang, 2017).

Self-efficacy was studied in relation to different variables. It is claimed that self-efficacy is linked to writing apprehension (Bandura, 1986a; in Pajaras, 2003). In this regard, strong self-efficacy beliefs can decrease writing apprehension, while low self-efficacy beliefs increase writing apprehension (Pajaras, 1999; in Pajaras, 2003). Moreover, writers' self-efficacy for self-regulation (i.e. confidence to use metacognitive strategies) correlates with writing competence (ibid.). In the same vein, confidence in the use of metacognitive strategies is linked to greater strategy use, higher intrinsic motivation, and academic achievement (Pintrich and Degroot, 1990).

Notwithstanding, it was maintained that the correlation between self-efficacy and apprehension may vary (Pajaras & Johnson, 1994). Despite the contradictory views, social cognitive theory stresses that self-efficacy beliefs are related to writing apprehension. Self-efficacy beliefs increase when students are provided with process goals (i.e. specific strategies to use to improve their writing), when they configure task outcomes (i.e. what is required of them), and when they know the standards which can lead to these outcomes (Zimmerman & Bandura, 1994; Bandura, 1986; Zimmerman & Moylan, 2009; Pajaras, 2003).

2.3.2. Writing Apprehension

Writing apprehension as a construct was developed by Daly & Miller (1975) to account for a state of avoiding writing and perceiving it as uninteresting or unrewarding. This construct was developed in an ESL context, and subsequently research using this variable was carried out in EFL writing contexts. In this regard, L1 writing apprehension was found to be highly positively correlated with L2 writing apprehension (Hadaway, 1987; Wu, 1992; in Cheng, 2002).

Writing apprehension is also referred to as writing anxiety (Cheng, 2002, 2004; Cheng, Horwitz, & Schalleert, 1999). This means that writing anxiety and writing apprehension are used interchangeably in the literature. However, writing apprehension as a term is the most commonly used, as it is the one coined by its developers Daly & Miller (1975).

Writing apprehension was defined as “an individual difference characterised by a general avoidance of writing and situations perceived by the individual to potentially require some amount of writing accompanied by the potential for evaluation of that writing” (Daly, 1979, p. 37). Also described as “a situation and subject-specific individual difference concerned with people’s general tendencies to approach or avoid writing” (Daly, 1978, p. 10). It has different sources or causes, namely, lack of writing competence, impact of teacher’s evaluation, negative response to writing assignments, or repeated negative writing experiences. (Daly, 1978, 1979; Daly & Miller, 1975c).

Leader (1991) added classroom environment and the social setting (i.e. relationship between teacher and student or student and peers in a writing class) as external conditions or causes of writing apprehension. Grabe & Kaplan (1996) referred to apprehension as anxious feelings that result from the writing process. Onwueghbuzie et al. (1999) linked writing apprehension to writers’ inability to cope with challenges during the writing process and referred to it as composition anxiety, writing anxiety, and writing block.

Writing apprehension has a major influence on the quality of writing and was found to affect negatively the quality of language (e.g. ideas, arguments, words, and organisation) and the length of the text produced (Daly, 1978). Different studies (e.g. Kim, 2006; Rezaei & Jafari, 2014) have been conducted in EFL contexts, and they explored the prevalence of writing apprehension among university students. It was assumed that EFL writers experience writing apprehension, and most of the writing difficulties they experience are associated with it. Writing apprehension can affect the processing of strategies (Madigan et al., 1996; in Cheng, 2002). Moreover, it can lead to decreasing their confidence in their ability as writers.

Writing apprehension can influence the quality of language and ideas produced (Burgoon & Hale, 1983b; Daly, 1977; Fleming, 1985; in Cheng et al., 1999). It can negatively influence writing performance (Dickinson, 1978, in Cheng et al., 1999) and willingness to take advanced writing courses (Daly & Miller,

1975b). In academic contexts, writing apprehension is influential because it determines students' choices: it may reduce their interest in courses, which require writing and even make them avoid taking advanced writing courses. It also influences career choices (Cheng et al., 1999; Daly, 1978). Writing apprehension is related to writer's attitudes and motivation, because it is a form of willingness to take writing courses (Daly, 1978, 1979; Daly & Miller, 1975 a).

From a socio-cognitive perspective, the presence of writing apprehension leads to low self-efficacy beliefs; i.e., low confidence in one's writing ability. For instance, Cheng (2002), along with other researchers (e.g. Clement, 1980; Pajaras & Valiente, 1996; Pajaras & Johnson, 1995; in Cheng, 2002) found that writing apprehension is determined by writers' self-efficacy beliefs. Bandura (1986a, p. 321; in Bandura, 1986b) maintained that self-efficacy beliefs determine "how well people cope with threats and how much fear arousal they experience". This means that writing apprehension is determined by self-efficacy beliefs. To explain, self-efficacy beliefs determine how well writers sequence metacognitive strategies, and ultimately it has consequences on the load of writing apprehension they can develop in response to the success of the task.

In addition, apprehension is linked to underdeveloped strategic self-regulation and low confidence in one's own writing ability. Writing apprehension is an affective variable, which can determine writing competence (Novich, 1992). Accordingly, it is a defensive trait (i.e. a negative affective response). It is mediated by self-efficacy beliefs; i.e., low self-efficacy beliefs may engender writing apprehension. On the other hand, it is a reaction to inability to apply writing strategies. In this vein, writers can obtain information about the effectiveness of the strategies they have processed and react accordingly.

Writing apprehension is an aversive reaction, which results from writers' negative self-judgements. Throughout "feedback loops", writers obtain information, which indicates how well they are using monitoring strategies. When the feedback is negative and writers judge themselves as incapable of processing strategies, writing apprehension develops. It has to be mentioned that feedback

loops and self-efficacy perceptions generated depend on a set of evaluative standards writers form. Evaluative standards refer to criteria writers apply to judge themselves as capable or incapable, and they determine writers' writing apprehension.

The effects of writing apprehension are explained in terms of the affective filter theory (Krashen, 1982). High affective filter presents debilitating effects on the quality of performance and communication. Knowing that writing in a foreign language "requires conscious effort and much practice in the ability to compose, develop, and analyse ideas, among a host of other factors related to second language acquisition" (Myles & Robinson, 2012, p. 156; in Deb, 2018), it can involve aversive reactions. To explain, writing is a productive skill, in which different affective factors are involved that can hamper students' development.

For instance, debilitating affective factors can reduce the quality of students' writing and their performance. Deb (2018) included attitudes, motivation, and anxiety as the main affective factors, which can affect EFL writing. Researchers such as (Pajaras & Johnson, 1994; Cheng, 2002; Zimmerman & Risemberg, 1997) referred to self-efficacy and motivation as factors, which affect writing. Basing their assumptions on socio-cognitive theories, they related self-efficacy to the quality of strategic choices and to writing apprehension.

EFL writing is also influenced by anxiety or apprehension, which is believed to affect students' academic choices (Daly, 1978). The load of writing apprehension affects students' judgments of their ability as writers, because it can result in forming negative self-evaluative standards (Schunk & Pajares, 2010). Self-evaluative standards are the criteria writers use to assess their ability. These standards help them to monitor and measure the extent to which they are capable of reaching their communicative goals and applying strategies successfully. Writing apprehension mitigates the impact of positive self-evaluative standards, and this can have a direct effect on students' ability to process goals for future tasks (Locke & Johnston, 2016).

Conclusion

This chapter has dealt with different components related to EFL writing. Section 1 described writing strategies and discussed the different classifications of metacognitive strategies such as planning, goal setting, monitoring, and evaluating. Cognitive writing strategies that pertain to metacognitive strategies were covered. Section 2 covered different ideas related to EFL writing ability. Starting from a description of the construct “writing ability”, which was grounded on Bachman & Palmer’s (1996) definition to a discussion of EFL composition theories.

In this section, a discussion of different models of writing ability (e.g. Hayes & Flower, 1980; Scardamalia & Bereiter, 1987; Hayes, 1996; Zimmerman & Risemberg, 1997) highlighted the metacognitive processes involved in EFL writing, which was believed helpful to understand the potential role of metacognition in improving writing.

In section 2, there was a reference to assessment of EFL writing, and this enabled discussion of assessment principles in relation to writing. Furthermore, self-assessment of EFL writing was discussed, and a set of standards defined in the literature on assessment of academic writing were highlighted in order to consider criteria for use in designing self-assessment. Moreover, language proficiency models were reviewed, because they are useful to make inferences from test scores on students’ writing ability and to devise criteria to be used for self-assessment activities and scoring grids.

Section 3 dealt with EFL writing in relation to two affective components: writing apprehension and writing self-efficacy. In this section, the relationship between the two variables was established relying on socio-cognitive theories. In this vein, their load is the consequence of strategic self-regulation. Furthermore, the causes, conditions, and theoretical background of writing apprehension were discussed. Similarly, the nature of writing self-efficacy was considered referring to strategic, linguistic, and context-related self-efficacy.

Chapter 3: Research Design and Procedure

Introduction

This chapter is devoted to the research design. It starts with a description of the sample and the setting, and proceeds to a description of the mixed-methods research approach and the rationale for advancing it to conduct this research. The chapter includes two parts: the quantitative study and the qualitative study.

Part 1 identifies the quantitative research paradigm. It clarifies the rationale for the selection of the components of the quantitative research, namely, how theory was used, the type of hypotheses formulated, the research design adopted, and the steps taken to minimise threats to reliability and validity in quantitative research. Then, it proceeds to a description of the research design and its different phases, starting from the pre-testing phase, which introduces the pre-study tools and the treatment phase which introduces the treatment procedure, to the post-testing phase.

The research design section describes the quasi-experimental research design, which is used to test the hypotheses formulated and eventually to test the effect of self-assessment on the dependent variables. The pre-testing phase deals with the pre-study tools, which are mainly, a pre-scale, a pre-test, and a pre-inventory. Subsequently, this section clarifies the rationale for the design of these tools, and the validity and reliability measures of the tools. The treatment section describes the treatment procedure and the self-assessment activities used.

The post-testing phase section describes the administration phase, which was held subsequent to implementing the treatment. Finally, the methods used to analyse the data are provided. Part 2 identifies the rationale for advancing the qualitative study. This part covers the sampling strategy, the data collection tools and procedure, and ultimately the methods of data analysis.

3.1. Research Approach: Mixed-methods Research Design

Mixed-methods research is a new field in social sciences. It has different terms; namely, *quantitative and qualitative methods*, *multi-method*, and *mixed methodology*, but the term *mixed methods* is the one most frequently used. Mixed-methods approach originated in the late 1980's and early 1990's. Researchers in different fields such as education, management, sociology, and health sciences used it. Mixed-methods research developed through several phases including formative stage, philosophical debates, procedural developments, and recently reflective positions (Cresswell, 2014).

Mixed-methods approach adheres to the pragmatic worldview, which implies that the search for truth is not based on one system of philosophy, but on different approaches that can be used to solve a research problem. Pragmatists see that drawing on multiple approaches can help the researcher understand a research problem, and consequently provide adequate knowledge. Inquirers use both qualitative and quantitative assumptions to solve a research issue. This worldview came from the work of pragmatists such as Pierce, James, Mead and Dewey (Cherryholmes, 1992; in Creswell, 2014).

Mixed-methods research involves collecting both quantitative (i.e. close-ended data) and qualitative data (i.e. open-ended data) to answer a particular research question. Three rigorous procedures can be followed to collect data for a mixed-methods research design. To that end, data can be integrated, connected, or embedded. Integrating the data encompasses collecting quantitative and qualitative data and combining them through procedures of comparison. Connecting the data refers to the process of collecting one form of data, either qualitative or quantitative and using the results to construct the instruments for the second set of data (qualitative or quantitative). Finally, embedding the data is a procedure, which involves conducting an experiment or an ethnographic/narrative study and supplementing it with qualitative or quantitative data collection respectively (ibid.).

The type of mixed-methods design used in this study is the embedded mixed-methods design. It involves collecting qualitative data after conducting an experiment. The qualitative data are collected and analysed separately. Timing of the data was sequential; i.e. quantitative data were collected first and followed by qualitative data. The emphasis is on quantitative data. The embedded design was used to incorporate the perspectives of the participants and explore the impact of the experimental intervention.

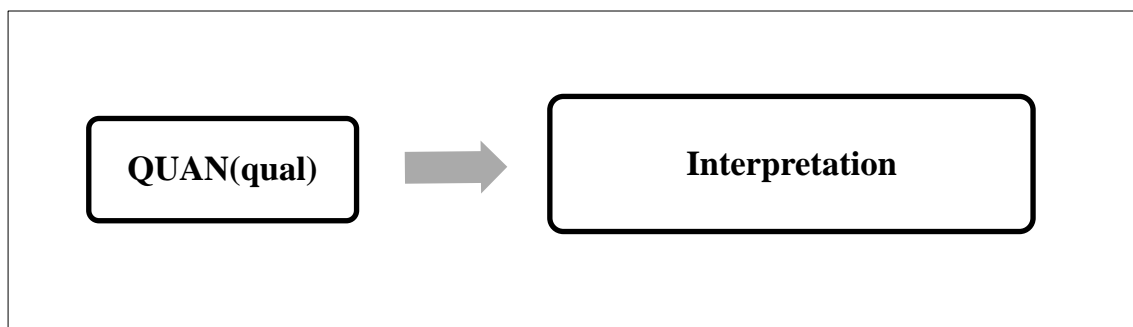


Figure 34: Visual Representation of the Embedded Mixed-methods Design

3.2. Quantitative Study

This research is based on a quantitative research paradigm. Quantitative research paradigms select variables of interest and measure the relationship between them. The variables selected carry cause-effect relationships, which are identified in a theory that a quantitative research paradigm starts with for verification and for interpretation using experimental methods of research (Cresswell, 2014). The starting point is a theory, which demonstrates cause-effect relationship between a set of variables. This theory is tested deductively. It is used for formulating a set of hypotheses, which carry cause-effect relationships. Hypotheses are verified by means of quasi-experimental research designs, which guard against threats to reliability and validity (ibid.). The use of quasi-experimental research designs allow verification of relationships by collecting data on instruments with close-ended questions and more often tests (Cresswell, 2014).

In quantitative research paradigms, data collected from instruments are analysed using statistical procedures, mainly inferential statistics, which enable the researcher to make conclusions from a sample to the wider population (Gall, Gall,

& Borg, 2003). Inferential statistics allow the researcher to test the hypotheses advanced, and eventually make predictions about the nature of the relationship between the variables tested (Cohen et al., 2007). Interpretation of data gathered and analysed follows theoretical frameworks. In this vein, theories propose a background for the verification of the hypotheses and ultimately for explanation of the relationship between the variables being tested (Cresswell, 2014).

Based on this paradigm, this research relies on a socio-cognitive view of self-regulation (Zimmerman & Risemberg, 1997; Zimmerman & Moylan, 2009) to examine the effect of self-assessment on the development of academic writing in EFL. From this perspective, it is suggested that self-monitoring as a component of self-regulation can result in the development of the use of metacognitive strategies, writing ability, and the decrease of writing apprehension. Accordingly, self-assessment is the independent variable, which carries cause-effect relationship with academic writing. This research attempts to verify this relationship by advancing a set of non-directional hypotheses in response to the research questions. These hypotheses aim at testing the effect of self-assessment on the development of academic writing in terms of the use of writing strategies, the development of writing ability, and the decrease of writing apprehension.

Research Questions

RQ1: Does self-assessment help participants to develop their writing strategies?

RQ2: Does self-assessment help participants to develop their writing ability?

RQ3: Does self-assessment help participants to decrease their writing apprehension?

Hypotheses

H1. There is a difference between the mean score of the group, which uses self-assessment and the mean score of the group, which does not use self-assessment in terms of the use of writing strategies.

H2. There is a difference between the mean score of the group, which uses self-assessment and the mean score of the group, which does not use self-assessment in terms of writing ability.

H3. There is a difference between the mean score of the group, which uses self-assessment and the mean score of the group, which does not use self-assessment in terms of writing apprehension.

A quasi-experimental research design was used to test these hypotheses by implementing a set of self-assessment activities in the experimental group. As part of this design, an attempt has been made to maximise validity and reliability in relation to:

Internal Validity

Internal validity is maximised when an “explanation of a particular event, issue or set of data which a piece of research provides can actually be sustained by the data” (Cohen et al., 2007, p. 135). In experiments, it is related to controlling the threat ‘history’ (ibid.). History refers to “events, other than the experimental treatment, occurring between pre-test and post-test and thus providing alternate explanations of effects” (Campbell & Russo, 1990, p. 80). History can be controlled by sorting other possible external effects other than the experimental innovation (Griffie, 2012). In this research, the possible threats considered were the possibility that the participants had extra-curricular activities, which could help them develop their writing skills. To explore this aspect, the participants (n=60) were asked to answer a couple of questions (Appendix A). No such cases were reported.

External Validity

External validity refers to “the degree to which the results can be generalised to the wider population, cases or situations” (Cohen et al., 2007, p. 136). For a quantitative research paradigm, random sampling is the necessary condition for generalisability (ibid). Nevertheless, random sampling is unpractical and

impermissible in educational research including the context under study. However, researchers can use inferential statistics, which allow them to generalise the findings when the convenient sample includes the characteristics which are believed to reflect the wider population and which are important to the study (Gall, Gall, & Borg, 2003). In this study, the sample bears the characteristics which are critical to the study and which are assumed to characterise the wider population such as academic ability and gender. Thus, the sample includes male and female participants with different language abilities. Nevertheless, replication of the study with a random sample is recommended.

Content Validity

Content validity concerns the data collection tool and the degree to which it “fairly and comprehensively covers the domains or items that it purports to cover” (Cohen et al., 2007, p. 137). In test design, content validity is related to developing a test, which can cover the elements of the construct definition (ibid.). In instruments, they need to include a set of categories, which can fairly represent the components of the construct (ibid.). In this regard, the pre and post scale (i.e. data collection tool to answer the first research question) includes a set of categories which are a representation of the dependent variable ‘writing strategies’; namely, planning strategies, while-writing strategies, and revising strategies (Petrić & Czár, 2003).

The pre and post writing test used to answer the second research question are performance-based. Performance-based tests involve participants in direct performance of the skill being measured. The test used is a paragraph construction task, which covers the components of writing ability specified in the construct definition, namely, grammatical knowledge, textual knowledge, functional knowledge, sociolinguistic knowledge, and topical knowledge.

The pre and post writing apprehension inventory (i.e. data collection tool to answer the third research question) covers a set of categories, which deal with

writing apprehension; namely, anxiety about writing in general and anxiety about teacher evaluation of writing (Daly & Miller, 1975 a).

Construct Validity

This type of validity is concerned with the standard definition of the construct and how it is operationalised from a set of accepted definitions in the literature (Cohen et al., 2007). To maximise construct validity, the definition of the construct needs to take into consideration the context of the study (ibid.). This entails adaptation of the tools to include categories, which reflect the context of the study.

First, writing strategies are defined as “actions or behaviours consciously carried out by writers in order to make their writing more efficient” (Petrić & Czár, 2003, p. 189). Accordingly, the construct was operationalised in terms of a set of statements, which report the use of writing strategies. For this study, the writing strategies scale (Petrić & Czár, 2003) was adapted to include a set of statements, which reflect the context of the study. Thus, items which do not fit the context (e.g. in terms of culture and context) were eliminated. Second, writing ability was defined as participants’ ability to apply a set of ‘abilities’ in relation to

- (a) grammatical knowledge: it is knowledge of the basic units of language such as syntax, vocabulary, and graphology,
- (b) textual knowledge: it is or knowledge of coherence and how texts are organised on the basis of the fundamental grammatical units,
- (c) functional knowledge: it refers to knowledge of how language is used to express different functions, and
- (d) Socio-linguistic knowledge: it refers to knowledge of appropriateness of register (Bachman and Palmer, 1996; Fulcher & Davidson, 2007).
- (e) Topical knowledge: it refers to background knowledge on the topic.

Third, writing apprehension “is concerned with a person’s general tendencies to approach or avoid situations perceived to demand writing accompanied by some form of evaluation” (Daly, 1978, p. 10). Writing

apprehension has four main components: anxiety about writing in general, anxiety about teacher's evaluation of writing, anxiety about professional evaluation, and anxiety about peer evaluation of writing (Daly & Miller, 1975 a). In this research, the writing apprehension inventory (Daly & Miller, 1975 a) was adapted to include two main categories, which define writing apprehension in terms of anxiety about writing in general and anxiety about teacher's evaluation of writing. Other components of writing apprehension such as anxiety about professional evaluation and peer evaluation of writing were excluded, because they do not fit the context under study knowing that first year students are not engaged in article writing (i.e. writing for career development) and are assessed by the teacher not by peers.

Reliability

Reliability refers to consistency of the instrument over similar samples (Gall, Gall, & Borg, 2003). Consistency over samples is concerned with piloting the instruments (Cohen et al., 2007). In this research, the instruments to measure writing strategies and writing apprehension were piloted with a number of participants (n=15) from the wider population in order to check if the items can be applied to the context under study, and to check wording and practicality in terms of time needed to answer.

As part of quasi-experimental research designs, data were analysed using t-tests in an attempt to compare test differences and to test the hypotheses. The t-test was calculated automatically. Data were interpreted based on metacognitive theories, which can provide explanations for the relationship between the variables of interest.

3.2.1. Research Sample, Population, and Setting

First year degree students (N=1200) enrolled in the English Department, University of Algiers 2 were selected as the population of interest for two reasons. First, self-assessment is a process, which needs to be implemented in the first years of undergraduate education (Boud, 1995). Second, first-year Study Skills courses

introduce basic academic writing skills such as paragraph writing and the treatment conditions used in this study were designed in accordance with these practices.

Due to administrative constraints, convenience sampling as a variant of non-probability sampling was the strategy used. It allows for the selection of available and accessible samples (Cohen, Manion, & Morrison, 2007). It also ensures practical and permitted access to the sample (*ibid.*).

Two intact classes with an enrolment of 60 members each were the convenient sample available. Thirty participants were selected from each group ($n=30$) as the sample of the study based on their availability. The sample has male and female participants with different English language abilities: Group 1 includes 21 females and 9 males whose scores obtained in the Bacculaureate English exam ranged from 11/20 to 19/20. These Bacculaureate holders come from different school streams such as science, management, philosophy, and foreign languages. Group 2 includes 24 females and 6 males. They have the same profile as group 1 participants. Contact with the participants was gained through e-mails.

3.2.2. Research Procedure

A quasi-experimental research design was conducted in order to investigate the effect of using self-assessment on academic writing. It was conducted with a sample of 60 students. The sampling strategy was convenient sampling. Two groups ($n=30$) participated in the study. This number is appropriate for an experimental design, and for statistical analyses of data (Sudman, 1976; in Gall, Gall, & Borg, 2003).

Quasi-experimental research designs allow for investigating cause-effect relationships between variables, generally an independent variable which is a treatment variable, and a dependent variable which is an outcome variable. In quasi-experimental research designs, a pre-test is administered to two intact groups. A treatment or an innovation is implemented for a period, and subsequently, a post-test is administered to the same groups to measure the effect of the independent variable on the dependent variable (Cook & Campbell, 1979; in Cohen et al., 2007).

The design adopted was the non-equivalent control group design, which refers to implementing a treatment in an experimental group while withholding it from the control group. The two groups are not randomly assigned (Cohen et al., 2007). This design can gain representativeness by selecting samples, which are as alike as possible from the same wider population (Kerlinger, 1970; in Cohen et al., 2007). To that end, the participants of both groups had similar characteristics: both groups included male and female participants whose scores in the Baccalaureate English exam ranged from 11/20–19/20. The two groups were selected from the same population of first-year students.

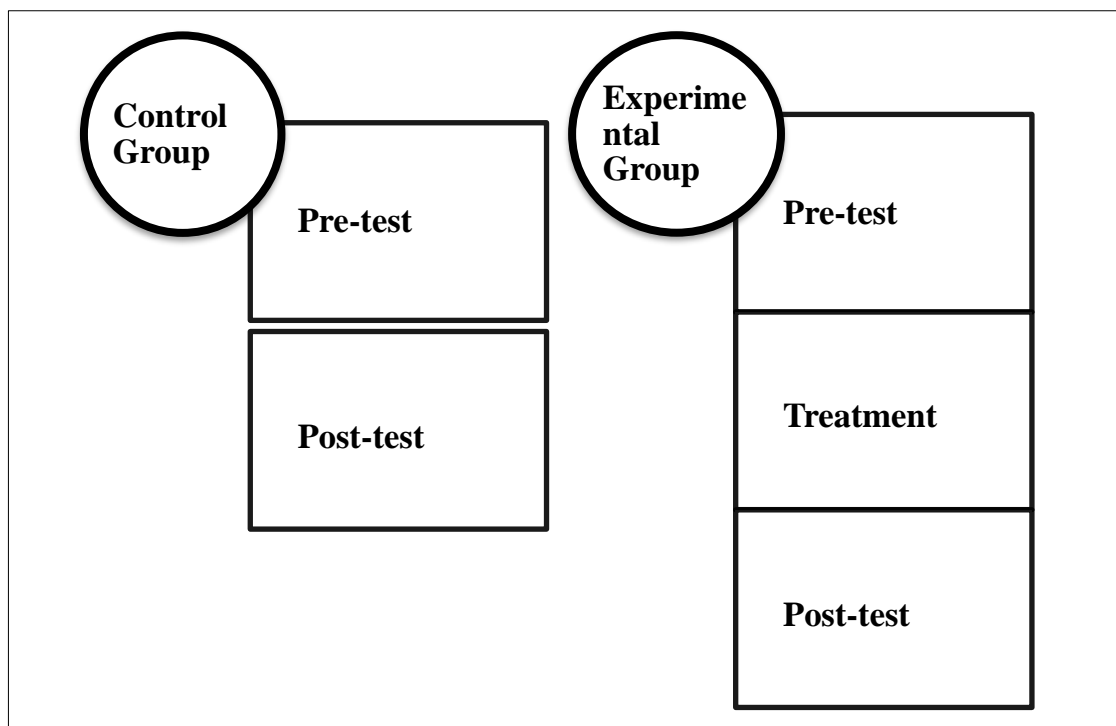


Figure 35: Visual Representation of the Quasi-experimental Research Design

The experiment took place in the academic year 2018-2019, in the Department of English, University of Algiers 2. It was conducted with two first year groups (n=60). Its aim was to test whether implementing self-assessment would produce improvement in the use of writing strategies and academic writing ability, and a decrease in writing apprehension. The experiment started with administering pre-study tools in week 1; namely, the pre-scale, the pre-test of writing, and the pre-inventory to the two groups.

In week 2, the research proceeded by implementing the treatment in the experimental group, while withholding it from the control group. The treatment involved the use of a set of self-assessment activities; namely, a writing strategies checklist intended for monitoring the writing process and a checklist of writing composition for assessment of the paragraphs or the final product. The self-assessment activities were administered as part of four writing tasks. For each writing task, the participants of both groups were asked to write a paragraph on a specific topic. After a four-week period, the researcher administered the post-study tools; namely, the post-scale, the post-writing test, and the post inventory after the implementation of the treatment.

3.2.2.1. Pre-testing Phase

As part of the pre-testing phase, the three pre-study tools were administered to group 1 and group 2 in week 1. The tools consisted of the pre-scale, the pre writing test, and the pre-inventory.

a. Description of the Scale

In order to answer the first research question “Does the use of self-assessment help participants to develop their use of writing strategies?” a writing strategies scale (Appendix B) was used. The scale was adapted from Petrić & Czár (2003). It includes a set of statements, which represent an assertion about the use of writing strategies. The statements were sequenced following the stages of the writing process, namely, pre-writing, writing, post-writing. Each category includes a set of items which deal with writing strategies, namely, planning strategies (8 items), while-writing strategies (14 items), and revising strategies (16 items). The division of the stages of the writing process does not indicate that they are separate, rather some items indicate the overlap of these writing stages (e.g. item 2.5- I go back to my outline and make changes in it).

The scale includes positive statements which represent the use of writing strategies (e.g. I write an outline of my paper) and negative statements which do not represent the use of writing strategies (e.g. I start writing without having a written or mental plan). The scale includes 44 items: 38 strategy items and 6

background questions. The items have a five-point Likert scale with options ranging from *never or almost never true of me to always or almost always true of me*.

The scale developers defined writing strategies as conscious actions used by students to improve their writing performance (Pétric & Czár, 2003). They based their definition of the construct on that provided by Cohen (1998, pp. 10-11; in Pétric & Czár, 2003) who defined strategies as conscious actions which students select to use the language, to learn it, or both. The construct was operationalised as a list of written statements, which represent an assertion about the use of a writing strategy. The scale was devised to measure L2 writers' self-reported writing strategies.

After writing and improving the first drafts of the scale with a group of experts, Petric & Czarl (2003) tested the internal reliability of the scale using measures of internal consistency, which resulted in a coefficient of 0.634. This number was found to be moderately acceptable. Furthermore, they conducted a qualitative and quantitative study to test the reliability of the tool. For the quantitative study, a test-retest method was used to establish stability of the instrument over time, i.e., to test if the instrument can elicit consistent answers from the same respondents.

Measures of validity encompassed checking three types of validity: content, construct, and response validity. For content validity, the developers wrote a draft, which was checked by experts for wording interpretation and instructions. The purpose was to eliminate irrelevant items and address wording problems. To establish construct validity, factor analysis was used. This procedure allowed for grouping variables into clusters. Response validity was used to see how participants can respond to the questionnaire using a type of think-aloud protocol.

The researcher omitted a number of items due to their lack of relevance to the context of this study and due to the fact that they might limit content validity of the scale. The omitted items, listed below, describe contextual factors such as task characteristics, time limitations, course requirements, and cultural factors:

Item 1: I make a timetable for the writing process

Item 3: I look at a model written by a native speaker or more proficient writer

Item 11: If I don't know a word in English, I stop writing and look up the word in the dictionary

Item 12: I use a bilingual dictionary

Item 13: I use a monolingual dictionary

Item 14: I ask somebody to help out when I have problems while writing

Item 4: I use a dictionary when revising

Item 12: I leave the text aside for a couple of days and then I can see it in a new perspective

Item 13: I show my text to somebody and ask for his/her opinion

Item 14: I compare my paper with what my friends have written on the same topic

Item 15: I give myself a reward for completing the assignment

Item 16: I check my mistakes after I get back the paper with feedback from the teacher, and try to learn from them

The scale was then piloted with fifteen randomly selected first-year students enrolled in the English department. The aim was to check its reliability over similar samples. After piloting the instrument, item 9 (I focus on one thing at a time when revising (e.g. content, structure) was omitted because it was confusing to the majority of the participants. This led to adapting the scale and re-administering it to other nine randomly selected first-year students enrolled in the same department. The final version of the scale includes 25 strategy items.

b. Description and Rationale of the Writing Test

A writing test (Appendix C and Appendix D) was used to answer the second research question: "Does the use of self-assessment help participants to develop

their writing ability?” The writing task selected is a type of responsive writing which enables participants to use grammar and discourse (Brown, 2003). This type of writing tasks enables the researcher to make inferences about participants’ writing ability defined in terms of grammar and discourse competencies. As we know, such considerations increase test validity.

Furthermore, the type of responsive writing tasks used in this research is paragraph construction tasks, which assess participants’ ability to develop a topic in a paragraph using a specific topic sentence and developing it with a set of connected and supporting ideas (Brown, 2003). Two paragraph construction tasks were used as pre and post-tests. The time allotted was one hour. For the pre-test, the prompt was ‘the advantages of using technology for language learning’. For the post-test, the participants were asked to write a paragraph on the topic ‘the advantages of learning a foreign language at a young age’. In order to achieve construct validity, the selection of the writing test hinges on Bachman & Palmer’s (1996) definition of the construct ‘writing ability’ (see section 2.2, page 110). As they note, writing ability encompasses language and topical knowledge.

Concerning test reliability, factors such as the amount of prior experience with the test, the topics selected, and the scoring procedure were necessary for developing the test (Weigle, 2002). To that end, writing paragraphs correspond to the participants’ experience as foreign language learners, because they were engaged in paragraph writing in High School. The topics selected as prompts in the writing tasks are assumed to be familiar to the participants. The scoring procedure was conducted using an analytical scoring grid, which includes the following scales; namely, organisation, content & development of ideas, grammar, mechanics, style and quality of expression (see section 3.2.3.2, page 187 for more details).

c. Description and Rationale of the Writing Apprehension Inventory

A writing apprehension inventory (Appendix E) was used as a tool to answer the third research question: “Does self-assessment help participants to decrease their writing apprehension?” The purpose of the inventory was to measure

participants' writing apprehension. The inventory was developed by Daly and Miller (1975 a). It was used to measure writing apprehension in ESL writing. The construct writing apprehension was defined as "a situation and subject-specific individual difference concerned with peoples' general tendencies to approach or avoid writing" (Daly, 1978, p. 10). The measurement of writing apprehension was based on measuring communicative apprehension. It was believed that communicative apprehension could be applied to other forms of apprehension such as those, which involve writing performance.

The development of the inventory was based on defining writing apprehension as a situation, which involves avoidance of writing (Daly, 1978). The sources of writing apprehension are poor skill development, lack of confidence in one's writing achievements and performance, and previous negative evaluation of writing (Daly, 1978, 1979). Writing apprehension is significantly related to low rating of one's writing ability and to fear of evaluation (ibid.). It is also inversely related to expectation of success in writing classes, readiness to attend writing classes, and enjoyment of writing outside the classroom (Daly, 1978; Daly & Miller, 1975 c).

These components are reflected in the items of the inventory, which are classified under the following categories: anxiety about writing in general, anxiety about teacher evaluation of writing, anxiety about peer evaluation, and anxiety about professional evaluation. The 26 items are arranged in a five-point Likert scale response format (1= strongly agree, 2=agree, 3= uncertain, 4=disagree, 5=strongly disagree).

The items include positive and negative statements. Positive statements demonstrate writing apprehension, while negative ones do not deal with writing apprehension. The purpose behind using positive and negative statements was to avoid response bias (Daly & Miller, 1975 a). In order to test reliability of writing apprehension inventory, split-half technique was used. This technique involves comparing the top half of the instrument with the second half. It resulted in obtaining a coefficient of .940, which indicated high reliability. Moreover, test-

retest reliability over a week was used, and it resulted in obtaining a coefficient of 0.923 (Daly & Miller, 1975 a). For the purpose of this research and to maximise content validity, two categories of the inventory with their corresponding items were omitted, namely, anxiety about peer evaluation of writing and anxiety about professional evaluation. The resulting inventory includes 23 items. It was piloted with fifteen first-year students enrolled in the English department.

3.2.2.2. Treatment Phase

As part of the treatment phase, both control and experimental groups were given topics to develop in a paragraph. The two groups were asked to write first drafts and the final draft for each writing task. To that end, four writing tasks (Appendix F, Appendix G, and Appendix H, and Appendix I) were implemented over a four-week period with four different topics. However, the experimental group used self-assessment activities to monitor their writing process and assess their written products. This figure illustrates the treatment procedure:

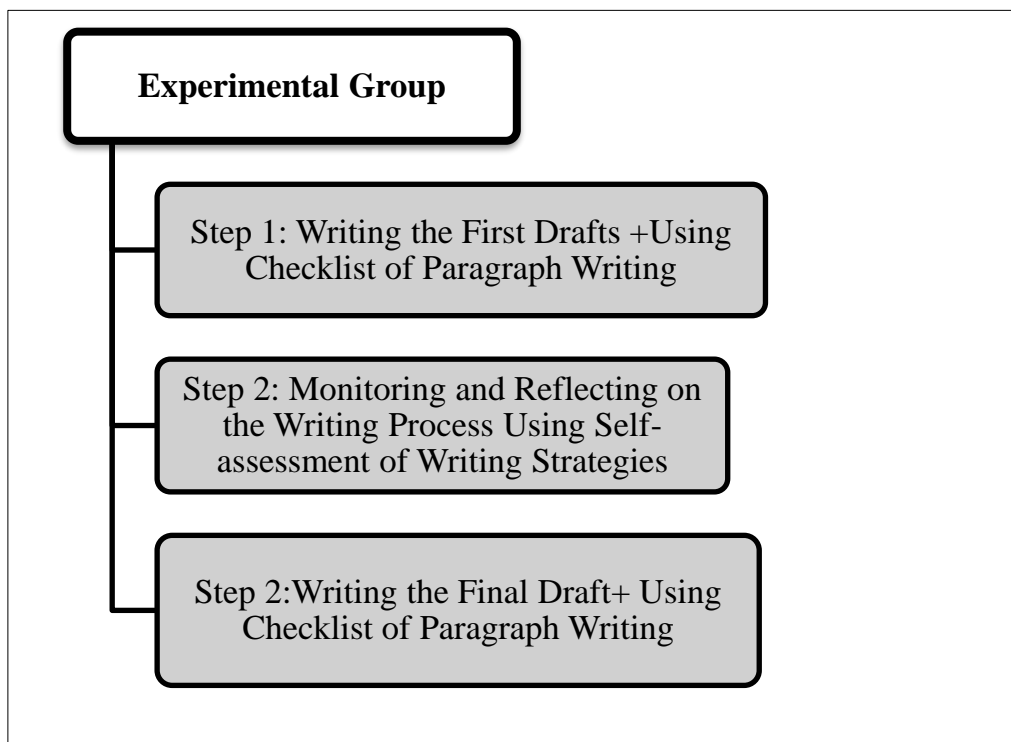


Figure 36: Visual Representation of the Treatment Phase

The operationalisation of the construct ‘self-assessment’ followed the definition provided, which stated that it is “a process of formative assessment

during which students reflect on the quality of their work, judge the degree to which it reflects explicitly stated goals or criteria, and revise their work accordingly” (Andrade, 2010, p. 91). It is “done on drafts of work in progress in order to inform revision and improvement” (ibid., p. 92).

To that end, participants used a writing strategies checklist to monitor their progress on the task by comparing their writing in progress to the criteria and to set goals. Similarly, they used checklist of writing composition to assess attainment of the criteria specified, and to make necessary improvements to their productions.

Group	Session 1 2 hours	Session 2 1 hour 30 minutes	Session 3 1 hour 30 minutes	Session 4 1 hour 30 minutes
Control	Introduce written assignment. Participants write first drafts. Participants write final draft.	Introduce written assignment. Participants write first drafts. Participants write final draft.	Introduce written assignment. Participants write first drafts. Participants write final draft.	Introduce written assignment. Participants write first drafts. Participants write final draft.
Experimental	Discussion of self-assessment criteria Introduce written assignment Participants Write first drafts & use checklist. Participants Write final draft & use checklist.	Introduce written assignment Participants Write first drafts & use checklist Participants Write final draft & use checklist.	Introduce written assignment Participants Write first drafts & use checklist Participants Write final draft & use checklist.	Introduce written assignment Participants Write first drafts & use checklist Participants Write final draft & use checklist.

Table 3: Sequence of Events by Group & Session

Before administering self-assessment activities, criteria used for each activity were explained. Explaining criteria aimed to help participants to have clear

understanding of what they will self-assess and thus to set the goals they want to achieve and plan their work correspondingly. According to Boud (1995), awareness of criteria is the main step towards self-assessment, because the ability to appraise performance necessarily depends on knowledge of criteria. Knowledge of criteria helps participants develop awareness of the parameters of effective performance, and can foster their ability to make judgements.

Raising students' awareness of the standards of good work is the tool to elaborate diagnosis of performance, because what is more important in self-assessment is helping students understand the criteria by which a work is to be evaluated (Boud, 1995; O'Malley and Pierce, 1996). Two types of self-assessment activities were administered to the experimental group, and they are described below:

a. Self-assessment Activity 1: Writing Strategies Checklist (Appendix J)

Self-assessment of writing strategies is an activity, which is composed of two sections. Section 1 is a checklist, which includes criteria covering the stages of writing process, namely, planning, while writing, and revising. Participants used it to monitor their writing process in terms of using writing strategies. They had to tick "yes" or "no" depending on the type of writing strategies they have used. Section 2 includes a goal-setting form, which helped participants to write goal statements that they can rely on or use to improve their performance for the next writing task.

Goal setting is a type of self-assessment involving participants in specifying goal statements, which describe the activities or tasks they need to develop. It was used in order to help participants monitor their writing process and to enhance their performance. In the present research, goal-setting form was also used in order to help participants fix the strategies they used and to plan writing in response to the goals they set.

The goal setting form helps participants to set realistic goals to perform the next writing tasks, and to identify strategies they need to use to improve their

writing process. Participants used this activity to monitor their movement throughout the writing process. They were asked to refer to the goals they have set every time they started a new writing task. A sample of participants' entries in goal-setting form is provided in Appendix K.

b. Self-assessment Activity 2: Checklist of Paragraph Writing (Appendix L)

The checklist of paragraph writing was used in order to help participants address the quality of their writing product and to check its accuracy. It includes criteria, which are based on the construct definition. The criteria are organisation, content and development of ideas, grammar, mechanics, style and clarity of expression. These involve descriptors such as use of the topic sentence, use of supporting sentences, and use of transitional expressions; addressing the assigned topic, development of ideas; use of relative clauses, prepositions, modals, articles, verb forms, and tense sequencing; use of English writing conventions, namely, margins, capitals, indentation, punctuation, and spelling. Style and quality of expression involves components like vocabulary use and register.

Participants were asked to use this checklist to assess the first and final drafts. Moreover, the participants were instructed on how to use self-assessment of paragraph writing. Some of the instructions are the following:

1. Mark key phrases in the checklist, then underline or circle in the draft the evidence of having met the criterion identified by the phrase.
2. In case the criterion was not met, you can write a reminder to make improvements as you write your final draft.

3.2.2.3. Post-testing Phase

After implementing the treatment to the experimental group. The post-scale and the post- inventory were administered to the control and experimental groups. The time allocated for the completion of each instrument was approximately fifteen minutes. Moreover, participants were given one hour to do a post-test of writing which involved them in writing a paragraph on a given topic.

3.2.3. Methods of Data Analysis

Methods of data analysis that were used are quantitative. They encompassed the use of numbers, which represent the scores generated from the types of responses provided by the participants. Different methods of analysis were used for different types of data.

3.2.3.1. Methods of Analysis of the Pre and Post-Scale Data

Responses gathered from each participant were allocated a score. The score is a total, which is the result of summing a set of sub-scores. The sub-score is based on the type of response given. For positive statements, 'very true of me' and 'a little bit true of me' were scored five points, neutral responses (i.e. don't know) were scored three points, and 'not really true of me' and 'very untrue of me' were scored one point (Tavakoli, 2012; Jupp, 2006). For negative statements, 'very true of me' and 'a little bit true of me' were scored one point, neutral responses were scored three points, and 'not really true of me' and 'very untrue of me' were scored five. Subsequently, the set of scores gathered were used in order to calculate the mean and to conduct the t-test at $\alpha=0.5$.

3.2.3.2. Methods of Analysis of Pre and Post-Test Data

Participants' compositions were rated using a scoring grid (Appendix M) which is composed of a set of scales specified based on the construct definition. Each paragraph was scored on the basis of five criteria specified in the scoring grid; i.e. organisation, content & development of ideas, grammar, mechanics, style and quality of expression. Each criterion was given a weighting of 2 points. The total score is the sum of the sub scores.

The criterion 'organisation' includes components such as use of the topic sentence, use of supporting sentences, use of the concluding sentence, and use of transitional expressions. 'Content or development of ideas' covers components such as addressing the assigned topic, and development of ideas. Grammar includes criteria such as use of relative clauses, prepositions, modals, articles, verb forms, and tense sequencing. Mechanics encompasses elements such as use of English writing conventions, namely, margins, capitals, indentation, punctuation,

and spelling. Style and quality of expression involve components like vocabulary use and register.

Each scale was given a score, which ranges from zero to two points. The score from each scale was combined for a total score (10 points maximum) which indicates participants' writing ability. Paragraphs which include listing ideas or written in a foreign language were scored zero, because they do not sample participants' writing ability.

3.2.3.3. Methods of Analysis of the Pre and Post-Inventory Data

Responses gathered from each participant were allocated a score. The score is a total, which is the result of summing a set of sub-scores. The sub-score is based on the type of response given. For positive statements, 'agree' and 'strongly agree' were scored five points, neutral responses were scored three, and 'disagree' and 'strongly disagree' were scored one point. For negative statements, 'agree' and 'strongly agree' were scored one point, neutral responses were scored three, and 'disagree' and 'strongly disagree' were scored five points (Daly & Miller, 1975 a). Subsequently, the set of scores gathered were used in order to calculate the mean and to conduct the t-test at $\alpha=0.5$.

3.3. Qualitative Study

The qualitative study was conducted in order to explore and confirm quantitative data, and to have a better understanding of the impact of self-assessment on the variables of interest. It was believed that further qualitative data is needed to understand data from writing strategies scale and writing apprehension inventory, since the data provided were not parametric. This type of data can help the researcher gain insights into participants' use of writing strategies and their attitudes towards paragraph writing. In this qualitative study, data were obtained by means of open-ended questions, which could provide word-based data. Research questions formulated are the following:

RQ 1: What are the strategies that participants used to write the paragraphs?

RQ 2: What are participants' attitudes towards paragraph writing in English?

3.3.1. Sampling Strategy

In qualitative research, only representative samples are selected. Appropriate variables are used to determine representativeness of the sample (Cresswell, 2014). In this qualitative study, a representative sample from the experimental group was selected. It included fifteen participants who had higher scores on writing strategies scale (above 75) and writing apprehension inventory (below 69). To that end, purposeful sampling strategy was used. It refers to selecting typical cases, which possess the characteristics being sought (Cohen et. al, 2007).

3.3.2. Description of Data Collection Tools

Data collection tools used to answer the research questions are interviews. Research interviews are defined as “a two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information, and focused by him on content specified by research objectives of systematic description, prediction, or explanation” (Cannell & Kahn, 1968, in Cohen et. al, 2007, p. 351). Interviews were used in order to obtain the type of word-based data required to answer the research questions. Interviews as a research tool can provide data, which can describe participants’ behaviours and attitudes towards the variable being researched.

The type of interviews used is the semi-structured interview, which is composed of a set of predetermined questions sequenced and organised in a set of categories. The categories can be selected based on the purpose of the research question, or based on the literature (Cohen et. al, 2007). It allows participants to answer the same questions, and thus to compare responses (Nunan, 1992). The data collection technique used was audio recording and note taking, which helped the researcher note central ideas and issues. The interviews were piloted with 4 participants before being administered.

3.3.2.1. Description of the Interview on Writing Strategies

The interview on writing strategies (Appendix N) sought to explore the writing strategies that participants used to write. The questions, which are behaviour questions are organised in three categories; namely, pre-writing

strategies, while-writing strategies, and post-writing strategies. The interview includes 6 questions.

3.3.2.2. Description of the Interview on Writing Attitudes

The interview on writing attitudes (Appendix O) was designed to explore participants' attitudes towards paragraph writing in EFL. It includes 6 attitude questions, which ask participants about their attitudes towards paragraph writing in English, and their attitudes towards their paragraph writing ability. Attitudes were defined as “an evaluative reaction to some referent or attitude object, inferred on the basis of the individual's beliefs or opinion about the referent” (Gardner, 1985; in Getie, 2020, p. 5).

3.3.3. Methods of Qualitative Data Analysis

Content analysis was used to analyse the data. It is a process of summarising and reporting written data. It is a technique, which helps the researcher to make inferences from texts (Cohen, et al., 2007). It can describe the relative frequency and importance of certain topics in the text (ibid.). Content analysis starts with a sample of texts (i.e. units), and involves coding, categorizing (i.e. creating meaningful categories into which the units of analysis: words, phrases, sentences can be placed, comparing the categories and making links between them, and drawing theories and conclusions from the text (ibid.).

3.4. Methodological Limitations

The quantitative study is limited by the unavailability of a random sample, which can guarantee population representativeness. It is also limited by the lack of an adequate sample size. Although convenient sample classes had an enrolment of approximately sixty members each, the number of participants available was around thirty approximately.

The study has threats to internal validity because threats of history may have existed. First-year syllabus introduces reading/writing courses in which students are required to write. We can point to the fact that the two groups had different teachers of reading/writing module, which made one group different from the other.

Therefore, it is possible that the teacher of the experimental group was actively involved in helping the students to develop their writing as opposed to the control group.

Although the qualitative study provided data to explore the effect of self-assessment on participants' use of writing strategies and writing attitudes, it has to be noted that data was more difficult to analyse and that categories could hardly be established. Moreover, grouping categories according to their corresponding themes could have been distorted by researcher's speculations.

Other qualitative study limitations may include issues with lack of previous research on the effect of self-assessment on writing strategies and writing attitudes. Other limitations include:

1. The genre chosen for the treatment and the tests was expository writing, which obscured other genres that are used in first year writing classes such as narrative, descriptive, or argumentative writing;
2. In order to accommodate syllabus content and timeline, the treatment took four sessions of one hour and a half for each. This was a short period for an experimental treatment such as self-assessment;
3. The interviews may lack reliability to explore participants' use of writing strategies during a writing process. Think-aloud protocol could have produced data that are more precise.
4. Conducting interviews was time-consuming.
5. The data gained from the qualitative study is not statistically representative.

Conclusion

This chapter entitled “ Research Design and Procedure’ has covered the research methodology. First, it started with a description of the sample (n=60) and the setting (English Department, University of Algiers 2). In this section, the characteristics of the sample such as language ability and gender were addressed and a rationale for the selection of a convenient sample was given.

The chapter reviewed the research design adopted: the embedded mixed-methods design, and highlighted its function in providing different sources of data, both quantitative and qualitative. Quantitative data were needed to test the hypotheses, while qualitative data were used to obtain insights into the effect of self-assessment on the use of writing strategies and participants’ attitudes towards EFL writing and towards their writing ability. The chapter was organised in two parts. Part 1 encompassed a description of the quantitative study. In this section, the components of the research paradigm such as the use of theory, validity, and reliability issues were discussed.

Part 1 focused on a description of the quasi-experimental design with all its stages, starting from pre-testing phase in which the pre-study tools (i.e. the writing strategies scale, the writing tests, and the writing apprehension inventory) were presented, to the post-testing phase. In addition, the treatment procedure was integrated with a description of self-assessment activities (i.e. a writing strategies checklist and a self-assessment checklist of paragraph writing). Methods of data analysis were also indicated, including the scoring procedure and the t-test.

In part 2, the qualitative study was addressed including a statement of research questions and a description of the sampling strategy adopted, which was purposeful sampling: the dominant type of sampling strategies in qualitative studies. The data collection tools (i.e. writing strategies interview and writing attitudes interview) and methods of data analysis (i.e. content analysis) were also discussed. A set of methodological limitations were highlighted such as the unavailability of a random sample and possible threats to validity.

Chapter 4: Data Analysis and Presentation

Introduction

This chapter analyses the data gathered from the quantitative and the qualitative studies. It is organised into two parts. Part 1 presents and analyses the data gathered from the quantitative study. It starts with analysis and presentation of data gathered from the scale, followed by analysis and presentation of data gathered from the tests, and finally the data gathered from the inventory.

Part 1 is organised in three sections. The first section entitled “Analysis of the writing strategies scale data” introduces and analyses data gathered from the pre scale. Then, it presents and analyses data gathered from the post-scale. Moreover, a sample of the scoring procedure is covered. In this section, data are presented in the form of tables.

The second section entitled “analysis of writing test data” presents and analyses data gathered from the pre-writing test. It also presents and analyses data gathered from the post-writing test. Tables are used to present data. For each data set, tables are used to present test scores and results from inferential statistics.

The third section entitled “analysis of writing apprehension inventory data” presents and analyses data gathered from the pre and post inventory. A sample of the scoring procedure is also provided. For each data set; i.e., pre and post inventory data, tables are used to present scores gathered and inferential statistics.

Part 2 analyses and presents data gathered from the qualitative study. It is organised into two sections. Section 1 analyses and presents data from the writing strategies interview. Section 2 analyses and presents data gathered from the writing attitudes interview.

4.1. Analysis of Data from the Quantitative Study

Data from the quantitative study involve numbers. The analysis includes descriptive statistics (i.e. counting frequencies and the mean), and inferential statistics (i.e. calculating t-test at $\alpha=0.05$).

4.1.1. Analysis of Writing Strategies Scale Data

In order to answer the first research question: “Does self-assessment help participants develop their writing strategies?” The following hypothesis was advanced: There is a difference between the mean score of the group, which uses self-assessment and the mean score of the group, which does not use self-assessment in terms of use of writing strategies.

To test the hypothesis, a pre and post-scale were used. The original version of the scale is composed of three categories namely, pre-writing, while writing, and revising. Each category includes a set of items which deal with writing strategies, namely, planning strategies (8 items), while-writing strategies (14 items), and revising strategies (16 items). The scale includes positive and negative statements. After piloting, the scale was adapted to include statements, which are related to the context. The final version includes 25 positive and negative statements.

4.1.1.1. Analysis of the Pre-scale Data

The pre-scale was administered to two groups (n=60) in order to collect data on participants’ writing strategies; i.e., to measure their use of writing strategies. The scale includes items, which are based on self-reporting. The items allow participants to self-report on their use of writing strategies.

Data gathered from the pre-scale are a set of scores. Each score is the result of adding up a set of scores representing participant’s response on a given item. This method is used in order to analyse data from Likert-scale. The sub score is given based on the type of response selected. Positive statements are scored 5 for ‘very true of me’ and ‘a little bit true of me’, 3 points for ‘don’t know’, and 1 point for ‘not really true of me’ and ‘very untrue of me’. Negative statements were

scored 1 for ‘very true of me’ and ‘a little bit true of me’, 3 points for ‘don’t know’, and 5 points for ‘not really true of me’ and ‘very untrue of me’ (Tavakoli, 2012; Jupp, 2006). The scoring procedure is illustrated in the following table:

Item	Score
Before I start writing a paragraph in English	
Positive item I read the instructions	5
<u>1= very true of me; 2=a little bit true of me, 3=don’t know;</u> 4=not really true of me; 5= very untrue of me	
Negative item I start writing without having a mental or written plan	3
1= very true of me; 2=a little bit true of me, <u>3=don’t know;</u> 4=not really true of me; 5= very untrue of me	
Positive item I think about what I want to write and have a plan in my mind, not on paper	1
1= very true of me; 2=a little bit true of me, 3=don’t know; <u>4=not really true of me;</u> 5= very untrue of me	
Positive item I note down words and short notes related to the topic	5
1= very true of me; <u>2=a little bit true of me,</u> 3=don’t know; 4=not really true of me; 5= very untrue of me	
Positive item I write an outline of my paragraph	3
1= very true of me; 2=a little bit true of me, <u>3=don’t know;</u> 4=not really true of me; 5= very untrue of me	
Positive item I write notes or an outline in my native language or another language	1

**1= very true of me; 2=a little bit true of me, 3=don't know;
4=not really true of me; 5= very untrue of me**

When writing a paragraph in English

Positive I start with the topic sentence 5

item **1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me**

Positive I stop after each sentence to read it again 5

item **1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me**

Positive I stop after a few sentences covering one idea 5

item **1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me**

Positive I reread what I have written to get more ideas 1

item **1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5=very untrue of me**

Positive I go back to my outline and make changes in it 5

item **1=very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me**

Positive I write bits of the text in my native language or another 5

item language and then translate them into English
1=very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

Positive I check my grammar and vocabulary 5

item

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me		
Positive item	I simplify what I want to write if I don't know how to express my thoughts in English	3
1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me		
Positive item	If I don't know a word in English, I write it in my native language or another language and later try to find an appropriate English word	1
1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me		
Positive item	If I don't know a word in English, I find a similar English word that I know	5
1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me		
When revising		
Positive item	I read the text to myself	1
1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me		
Negative item	I read what I have written only when I have finished the whole paper	3
1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me		

Negative item	When I have written my paper, I hand it without reading it	1
	1= very true of me; 2=<u>a little bit true of me</u>, 3=don't know; 4=not really true of me; 5= very untrue of me	
Positive item	I make changes in vocabulary	5
	1=<u>very true of me</u>; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me	
Positive item	I make changes in sentence structure	5
	1=<u>very true of me</u>; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me	
Positive item	I make changes in the structure of the paragraph	3
	1= very true of me; 2=a little bit true of me, 3=<u>don't know</u>; 4=not really true of me; 5= very untrue of me	
Positive item	I make changes in the content or ideas	1
	1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5=<u>very untrue of me</u>	
Negative item	I don't use my draft to adjust my final writing	5
	1= very true of me; 2=a little bit true of me, 3=don't know; 4=<u>not really true of me</u>; 5= very untrue of me	
Positive item	I check if my paragraph matches the requirements	5
	1=<u>very true of me</u>; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me	
Total		78

Table 4: Sample of Scoring Procedure of the Scale Data

The final score results by adding up these scores. The score of any participant would fall between 25 and 125. If it happens to be above 75 (a neutral response), it shows that the participant apply or use writing strategies. If it falls below 75, it would indicate that the participant does not apply writing strategies. Using this scoring procedure, the following scores were obtained:

Score	Frequency
125	1
121	1
117	1
85	2
81	3
77	1
75	2
67	1
65	2
63	3
61	2
44	4
39	3
37	3
29	1
Total	30
Mean	64.8

Table 5: Group 1 Pre-scale Data

By looking at the frequencies, it appears that the number of scores above 75 is 9, while the number of scores below 75 is 19. There are also 2 neutral responses. Moreover, the mean ($M=64.8$) falls below 75. This seems to indicate

that overall the participants do not use writing strategies that involved the use of pre-writing strategies, while-writing strategies, and revising strategies.

Score	Frequency
121	2
109	2
85	2
81	2
75	1
67	3
65	2
63	4
61	2
44	1
41	2
39	2
29	1
27	4
Total	30
Mean	63.77

Table 6: Group 2 Pre-scale Data

From the table, we can observe that the number of scores above 75 is 8, while the number of score below 75 is 21. The mean ($M=63.77$) is below 75. This seems to indicate that overall, the use of writing strategies measured in terms of using pre-writing strategies, while-writing strategies, and revising strategies is not developed.

We can also observe that the means of group 1 and group 2 are below 75 indicating that both groups do not use writing strategies. In addition, the mean of

group 1(M=64.8) is slightly higher than the mean of group 2 (M=63.77). In order to see if this difference is statistically significant, an independent samples t-test was used. First, a null hypothesis was stated that there is no statistically significant difference between the means of group 1 and group 2 on the pre-scale. Second, SPSS was used to obtain the following values:

Independent Samples/Two-tailed								
$\alpha=0.05$								
Variable/	Groups	N	M	Std. Deviation	SE Mean	t	Df	Sig(2-tailed)
Writing Strategies	Group 1	30	64.8	25.48	23.23	0.15	29	.880037
	Group 2	30	63.77	27.28				

Table 7: Independent Samples T-test Statistics for the Pre-scale Data

We can see that the mean score of group 1 on the variable ‘writing strategies’ (M= 64.8, SD= 25.48) is not statistically significantly different (t=0.15, Df= 29, two-tailed “p= .880037”) than that of group 2 on the same variable (M=63.77, SD= 27.28). Therefore, the null hypothesis is supported; i.e.; the difference between group 1 and group 2 is not statistically significant. This can indicate that the two groups are homogeneous in terms of using writing strategies. This seems to suggest that participants of both groups do not use writing strategies; namely, planning strategies, while-writing strategies, and revising strategies.

4.1.1.2. Analysis of Post-scale Data

A post-scale was administered to two groups (n=60): the control group did not use self-assessment, while the experimental group used self-assessment of writing strategies and goal-setting to monitor and plan their writing process. They also used a self-assessment of paragraph writing to assess their written compositions. The post-scale was used to measure the effect of using these activities on the development of participants’ use of writing strategies. The following scores were obtained from the post-scale data:

Score	Frequency
121	1
117	2
109	3
85	4
81	1
77	2
75	2
67	3
63	2
61	3
41	2
39	2
29	2
27	1
Total	30
Mean	72.07

Table 8: Control Group Post-scale Data

Table 8 shows the scores obtained from the control group post-scale data. It can be observed that the number of scores above 75 is 13, while the number of scores below 75 is 15. There are two neutral responses. Moreover, the mean of the control group ($M=72.07$) is below 75. This can reveal that most of the participants in the control group did not use writing strategies.

Score	Frequency
116	4
113	2

105	3
101	4
95	3
92	3
91	2
87	3
77	4
29	2
Total	30
Mean	92.63

Table 9: Experimental Group Post-scale Data

From this table, we can observe that the number of scores above 75 is 28, while the number of scores below 75 is 2. Moreover, the mean of the experimental group (M=92.63) is above 75. This suggests that the participants in the experimental group used writing strategies. The mean of the experimental group (M=92.63) is higher than the mean of the control group (M=72.07). Overall, the results seem to indicate that after the use of self-assessment activities, participants in the experimental group developed their use of writing strategies for planning writing, monitoring writing, and using revising strategies.

To see if the difference between the two groups is statistically significant, an independent samples t-test was used. First, a null hypothesis was stated that there is no statistically significant difference between the means of the control group and the experimental group after the use of self-assessment. Second, SPSS was used to obtain the following values:

Independent Samples/Two-tailed								
$\alpha=0.05$								
Variable/	Groups	N	Mean	Std. Deviation	SE Mean	t	Df	Sig(2-tailed)
Writing Strategies	Control group	30	72.07	27.42	19.97	3.25	29	.0019
	Experimental Group	30	92.63	21.12				

Table 10: Independent Samples T-test Statistics for the Post-scale Data

We can see that the mean score of the experimental group on the variable ‘writing strategies’ (M=92.63, SD=21.12) is statistically significantly higher (t=3.25, Df= 29, two-tailed “p=.0019”) than that of the control group on the same variable (M=72.07, SD=27.42). The null hypothesis is rejected. Therefore, the hypothesis, which stated that there is a difference between the mean of the group which used self-assessment and the group which did not use self-assessment in terms of use of writing strategies can be supported.

These results indicate that the use of self-assessment helped participants to develop their use of strategies necessary for writing. This entails that participants in the experimental group developed their ability to use planning, monitoring, and revising strategies.

4.1.2. Analysis of Writing Test Data

To answer the second research question “does self-assessment help participants to develop their writing ability?” The hypothesis advanced stated that there is a difference between the mean of the group, which used self-assessment, and the group, which did not use self-assessment in terms of writing ability. Data were obtained by means of a pre and post-test of writing. The writing test was a paragraph construction task, which involved participants in direct performance of writing. For the pre-test, the prompt was ‘The advantages of using technology for

language learning’. For the post-test, the participants were asked to write a paragraph on the topic ‘the advantages of learning a foreign language at a young age’.

4.1.2.1. Analysis of the Pre-test Data

The pre-test was administered to two groups (n=60) in order to test participants’ writing ability. The paragraphs were scored using a scoring grid (Appendix P). The grid includes scales, which were based on the construct definition; namely, content, organisation, vocabulary, language use, and mechanics (spelling and punctuation). Each scale is scored from zero to 2 points, and includes five descriptors, which are scored from the highest to the lowest including 0, 0.5, 1, 1.5, and 2 points. The scores were classified in three categories: average scores (=5-5.5 points) (Appendix Q), low scores (below the average/ <5) (Appendix R), high scores (above the average />5) (Appendix S). For the pre-test, the following scores were obtained:

Score	Frequency
8	1
7	1
6.5	4
6	1
5.5	2
4.5	3
4	3
3.5	4
3	3
2.5	2
2	2
1.5	4
Total	30

Mean	4.05
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Table 11: Group 1 Pre-test Data

Table 11 shows the pre-test data from group 1. By looking at the frequencies, the number of scores above the average (above 5 points) is 9, while the number of scores below the average (below 5 points) is 21. Moreover, the mean of group 1 ($M=4.05$) is below the average. Overall, this may indicate that the scores are low, and writing ability in group 1 is not developed.

Score	Frequency
7.5	2
6.5	1
6	2
5.5	4
5	3
4	5
3.5	4
3	3
2.5	3
1.5	3
Total	30
Mean	3.98

Table 12: Group 2 Pre-test Data

Table 12 shows pre-test data from group 2. By looking at the frequencies, the number of scores above the average (above 5 points) is nine, while the number of scores below the average (below 5 points) is 21. There are three average scores. The mean of group 2 ($M=3.98$) is below the average. The scores are low. Overall, this may indicate that writing ability in group 2 is not developed. By comparing the means of the two groups, we can see that both of them are below the average or low scores; i.e., writing ability is not developed.

In order to see if this difference is statistically significant, an independent samples t-test was used. First, a null hypothesis stated that there is no statistically significant difference between the means of group 1 and group 2 on the pre-test. Second, running the SPSS gave the following values:

Independent Samples/Two-tailed								
$\alpha=0.05$								
Variable/	Groups	N	Mean	Std. Deviation	SE Mean	t	Df	Sig(2-tailed)
Writing Ability	Group 1	30	4.05	1.86	0.1	0.15	29	.884275
	Group 2	30	3.98	1.66				

Table 13: Independent Samples T-test for the Pre-test Data

We can see that the mean score of group 1 on the variable ‘writing ability’ (M= 4.05, SD= 1.86) is not statistically significantly different (t=0.15, Df= 29, two-tailed “p= .884275”) than that of group 2 on the same variable (M=3.98, SD= 1.66). Therefore, the null hypothesis is supported; i.e.; the difference between group 1 and group 2 is not statistically significant. This can indicate that the two groups are homogeneous in terms of their writing ability. This seems to suggest that writing ability is not developed.

4.1.2.2. Analysis of the Post-test Data

As part of the post-test, the participants were asked to write a paragraph on the topic ‘the advantages of learning a foreign language at a young age’. The time allotted for the test was one hour. The paragraphs were scored using the same analytic scoring grid that was used for scoring the pre-test. The scores obtained are summarised in the following table:

Score	Frequency
8.5	1
8	1

7	2
6.5	2
6	4
5.5	5
5	2
4.5	4
4	3
3.5	3
3	3
Total	30
Mean	5.15

Table 14: Control Group Post-test Data

Table 14 shows the post-test data from the control group. By looking at the frequencies, the number of scores above the average (above 5.5 points) is 10, while the number of scores below the average (below 5.5 points) is 15. There are two average scores. Moreover, the mean of group 1 ($M=5.15$) is below the average. Overall, this may indicate that the scores are average, and writing ability in group 1 is adequately developed.

Score	Frequency
8.5	3
8	2
7.5	4
7	3
6.5	1
6	7
5.5	2
5	3

4.5	1
4	1
3	3
Total	30
Mean	6.15

Table 15: Experimental Group Post-test Data

Table 15 reports post-test scores of the experimental group. It can be observed that the frequency of scores above the average is 20, while the frequency of scores below the average is 8. There are three average scores. The mean of the experimental group (M=6.15) is above the average. This might indicate that most of the scores are high and participants in the experimental group developed their writing ability. Moreover, the mean of the experimental group (M=6.15) is higher than the mean of the control group (M=5.15). In order to see if the difference is statistically significant, an independent samples t-test was conducted. First, a null hypothesis was advanced that the difference between the mean of the control group and the mean of the experimental group is not statistically significant. SPSS was used to obtain the following values:

Independent Samples/Two-tailed								
$\alpha=0.05$								
Variable/	Groups	N	Mean	Std. Deviation	SE Mean	t	Df	Sig(2-tailed)
Writing Ability	Control Group	30	5.15	1.45	0.08	-2.53	29	.014222
	Experimental Group	30	6.15	1.60				

Table 16: Independent Samples T-test for the Post-test Data

In table 16, we can see that the mean score of the control group on the variable 'writing ability' (M= 5.15, SD= 1.45) is statistically significantly lower ($t=-2.53$, $Df= 29$, two-tailed " $p= .014222$ ") than that of the experimental group on the same variable (M=6.15, SD= 1.60). Therefore, the null hypothesis is rejected; i.e.; the difference between the control group and the experimental group is statistically significant. The mean of the experimental group is statistically significantly higher than that of the control group.

The hypothesis, which stated that there is a difference between the mean score of the group which used self-assessment and the mean score of the group which did not use self-assessment in terms of writing ability can be supported. This can indicate that the participants in the experimental group developed their writing ability. Overall, they developed their ability to write paragraphs, which show organisation of main and supporting ideas, relevance of ideas to the topic, accuracy of language, vocabulary, or appropriate use of spelling and punctuation. It seems that the self-assessment of writing checklist helped the participants to diagnose and develop knowledge of the components of paragraphs such as using main and supporting ideas, using cohesive devices, and using appropriate language. They used this knowledge to write the paragraphs.

4.1.3. Analysis of Writing Apprehension Inventory Data

To answer the third research question: "does self-assessment help participants to decrease their writing apprehension?", the hypothesis which states that there is a difference between the mean of the group which used self-assessment and the group which did not use self-assessment in terms of writing apprehension was tested using a pre and post inventory (Daly and Miller, 1975a). It was adapted to include two categories, which represent two sources of writing apprehension, namely, anxiety about writing in general and anxiety about teacher evaluation of writing. Thus, a 23-item inventory was used with Likert-scale options.

4.1.3.1. Analysis of Pre-inventory Data

The pre-inventory was administered to two groups ($n=60$) in order to collect data on participants' writing apprehension; i.e., to measure their writing

apprehension. Data gathered from the pre-inventory is a set of scores. Each score is the result of adding up a set of sub-scores representing the participant's response on a given item.

This method is used in order to analyse data from Likert-scale. The sub score is given based on the type of response selected. Positive statements which represent writing apprehension are scored 5 for 'strongly agree' and 'agree', 3 points for 'uncertain', and 1 point for 'strongly disagree' and 'disagree'. Negative statements which do not represent writing apprehension are scored 5 points for 'strongly disagree' and 'disagree', 3 points for 'uncertain', and 1 point for 'strongly agree' and 'agree' (Daly & Miller, 1975 a). The scoring procedure is illustrated in table 17 below:

	Item	Score
Anxiety about Writing in General		
Positive item	I avoid writing 1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	5
Negative item	I look forward to writing down my ideas 1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	3
Positive item	Taking a composition course (a writing course/lesson) is a very frightening experience 1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	1
Positive item	My mind seems to go blank (I cannot remember anything) when I start to work on a composition (paragraph)	5

		1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	
Positive item	Expressing ideas through writing seems to be a waste of time	1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	3
Negative item	I like to write my ideas down	1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	5
Negative item	I feel confident in my ability to clearly express my ideas in writing	1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	1
Positive item	I'm nervous about writing	1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	1
Negative item	I enjoy writing	1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	3
Positive item	I never seem to be able to clearly write down my ideas	1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	5
Negative item	Writing is a lot of fun	1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	1

Positive item	I expect to do poorly in composition/writing classes even before I enter them	1
	1= strongly agree, 2=agree, 3=uncertain, <u>4=disagree</u>, 5=strongly disagree	
Negative item	I like seeing my thoughts on paper	3
	1= strongly agree, 2=agree, <u>3=uncertain</u>, 4=disagree, 5=strongly disagree	
Positive item	I have a terrible time organising my ideas in a composition course	1
	1= strongly agree, 2=agree, 3=uncertain, <u>4=disagree</u>, 5=strongly disagree	
Negative item	It's easy for me to write good compositions	1
	1= <u>strongly agree</u>, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree	
Positive item	I don't think I write as well as most other people	5
	1= strongly agree, <u>2=agree</u>, 3=uncertain, 4=disagree, 5=strongly disagree	
Positive item	I'm not good at writing	3
	1= strongly agree, 2=agree, <u>3=uncertain</u>, 4=disagree, 5=strongly disagree	
Negative item	People seem to enjoy what I write	5
	1= strongly agree, 2=agree, 3=uncertain, <u>4=disagree</u>, 5=strongly disagree	

Anxiety about Teacher Evaluation of Writing

Negative item	I have no fear of my writing being evaluated	1
	1= strongly agree, <u>2=agree</u>, 3=uncertain, 4=disagree, 5=strongly disagree	
Positive item	I am afraid of writing paragraphs when I know they will be evaluated	5
	1= strongly agree, <u>2=agree</u>, 3=uncertain, 4=disagree, 5=strongly disagree	
Negative item	Handing in a composition (paragraph) makes me feel good	3
	1= strongly agree, 2=agree, <u>3=uncertain</u>, 4=disagree, 5=strongly disagree	
Positive item	When I hand in a composition I know I am going to do poorly	1
	1= strongly agree, 2=agree, 3=uncertain, 4=disagree, <u>5=strongly disagree</u>	
Positive item	I don't like my composition to be evaluated	5
	1= strongly agree, <u>2=agree</u>, 3=uncertain, 4=disagree, 5=strongly disagree	
Total		67

Table 17: Sample of Scoring Procedure of the Inventory Data

The score of any participants would fall between 23 and 115. Scores below 69 indicate low writing apprehension, and scores above 69 indicate high writing apprehension. Using this scoring procedure, the following scores were obtained:

Score	Frequency
109	1
107	2

105	2
103	3
101	1
100	2
99	3
97	1
95	1
93	1
91	1
90	5
89	1
73	3
27	3
Total	30
Mean	88.5

Table 18: Group 1 Pre-inventory Data

By looking at the frequencies, it appears that the number of scores above 69 is 27, while the number of scores below 69 is 3. Moreover, the mean ($M=88.5$) is above 69. This seems to indicate that overall, the participants have high writing apprehension.

Score	Frequency
107	2
105	2
103	2
101	1
100	2

99	2
97	2
95	2
93	5
91	2
90	2
89	3
73	3
Total	30
Mean	94.2

Table 19: Group 2 Pre-inventory Data

In table 19, we can observe that the number of scores above 69 is 30. The mean (M=94.2) is above 69. This indicates that overall, the participants have high writing apprehension. We can also observe that the two means (M1= 88.5, M2= 94.2) are above 69 indicating that the participants of both groups have high writing apprehension. In order to see if this difference is statistically significant, an independent samples t-test was used. First, a null hypothesis was stated that there is no statistically significant difference between the means of group 1 and group 2.

Independent Samples/Two-tailed								
$\alpha=0.05$								
Variable/	Groups	N	Mean	Std. Deviation	SE Mean	t	Df	Sig(2-tailed)
Writing Apprehension	Group 1	30	88.5	22.93	10.14	-1.27	29	.210578
	Group 2	30	94.2	9.06				

Table 20: Independent Samples T-test Statistics for the Pre-inventory Data

We can see that the mean score of group 1 on the variable ‘writing apprehension’ (M= 88.5, SD= 22.93) is not statistically significantly different ($t=-1.27$, $Df= 29$, two-tailed “ $p= .210578$ ”) than that of group 2 on the same variable (M=94.2, SD= 9.06). Therefore, the null hypothesis is supported; i.e.; the difference between group 1 and group 2 is not statistically significant. This can indicate that the participants of both groups are homogeneous in terms of writing apprehension. This seems to suggest that the participants of both groups have high writing apprehension.

4.1.3.2. Analysis of the Post-inventory Data

A post-inventory was administered to two groups (n=60): the control group did not use self-assessment, while the experimental group used self-assessment activities, mainly, self-assessment of writing strategies checklist and self-assessment of paragraph writing checklist. The post-inventory was used to measure the effect of using self-assessment on participants’ writing apprehension. The following scores were obtained from the post-inventory data:

Score	Frequency
105	2
103	1
99	3
97	5
93	6
91	2
89	2
75	1
73	5
71	3
Total	30

Mean	88.87
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Table 21: Control Group Post-inventory Data

Table 21 shows the scores obtained from the control group post-inventory data. It can be observed that the number of scores above 69 is 30. Moreover, the mean of the control group ($M=88.87$) is above 69. This can reveal that most of the participants in the control group have high writing apprehension.

Score	Frequency
105	1
103	1
99	1
93	1
73	3
65	2
61	3
57	1
55	1
53	1
51	1
49	2
47	1
45	2
43	2
41	1
39	1
37	1
35	2
31	2

Total	30
Mean	57.27

Table 22: Experimental Group Post-inventory Data

In table 22, we can observe that the number of scores above 69 is 7, while the number of scores below 69 is 23. Moreover, the mean of the experimental group (M=57.27) is below 69. This suggests that the participants in the experimental group have low writing apprehension, while the participants in the control group had high writing apprehension. The mean of the experimental group (M=57.27) is lower than the mean of the control group (M=88.87). Overall, this seems to indicate that after the use of the self-assessment activities to assess the writing assignment, the participants in the experimental group had less writing apprehension.

To see if the difference between the two groups is statistically significant, an independent samples t-test was used. First, a null hypothesis was stated that there is no statistically significant difference between the means of the control group and the experimental group after the use of self-assessment. Second, SPSS was used to obtain the following values:

Independent Samples/Two-tailed								
$\alpha=0.05$								
Variable/ Writing Apprehension	Groups	N	Mean	Std. Deviation	SE Mean	t	D f	Sig(2- tailed)
	Control	3	88.87	11.56	9.52	7.2	2	<.0000
	Group	0						
	Experimental Group	3	57.27	20.91				
		0				4	9	1

Table 23: Independent Samples T-test Statistics for the Post-inventory Data

We can see that the mean score of the experimental group on the variable 'writing apprehension' (M=57.27, SD=20.91) is statistically significantly lower ($t= 7.24$, $Df= 29$, two-tailed " $p=<.00001$ ") than that of the control group on the same variable (M=88.87, SD=11.56). The null hypothesis is rejected. Therefore, the hypothesis, which stated that there is a difference between the mean of the group which used self-assessment and the group which did not use self-assessment in terms of writing apprehension can be supported.

This can indicate that using self-assessment for writing helped participants to reduce their writing apprehension. After the use of self-assessment, participants in the experimental group developed their ability to write paragraphs. This led to decreasing their writing apprehension knowing that it is related to how students perceive their writing competence and to teacher's evaluation as well.

4.2. Analysis of Qualitative Data

Qualitative data includes a set of word-based data gathered using semi-structured interviews. The interviews includes a set of open-ended questions. Data were gathered using note-taking technique. They were analysed using content analysis, which allowed the researcher to generate themes from participants' responses. First, the responses were audio recorded, written down, and read attentively, and then the emerging categories were highlighted and grouped into their corresponding themes.

4.2.1. Analysis of Data from Interview on Writing Strategies

The interview includes six questions, which sought to explore the strategies that the participants used during the writing process. Qualitative data analysis started by reading the notes taken from participants' responses, and coding the data. Participants' responses were grouped thematically under related headings. Thus, major categories were sorted out and classified into their corresponding themes. Several of the quotes presented have been chosen because they sum up the behaviours reported more widely in the sample. The letters used are participants' initials. Table 24 below illustrates the emerging themes:

Coding	Category	Theme
1	1.1 Gathering ideas 1.2 Organising ideas	Planning strategies
2	2.1 re-reading sentences 2.2. adding sentences 2.3. omitting sentences	While-writing strategies
3	3.1 re-reading whole paragraph 3.2 editing spelling 3.3 editing punctuation	Revising strategies

Table 24: Themes Generated from the Analysis of Writing Strategies Interview Data

From this table, we can observe that the participants used planning strategies, while-writing strategies, and revising strategies, which are presented by the following strategies:

a. Planning strategies

1.1. Gathering ideas or brainstorming background knowledge

1.2. Organising ideas

b. While-writing strategies

2.1. Re-reading sentences

2.2. Adding sentences

2.3. Omitting sentences

c. Revising strategies

3.1. Re-reading whole paragraph

3.2. Editing spelling

3.3. Editing punctuation

In relation to planning strategies, participants focused on brainstorming background knowledge before they started writing, as the transcripts below indicate:

[Participant N]... I thought about everything I know (code 1.1) and I wrote it in a draft

[Participant A]... for me I think about the topic carefully (code 1.1)

[Participant M]... to think about important ideas (code 1.1) which are in relation to my topic

They also referred to organising their ideas in the draft before they started writing by drawing outlines and writing their notes on the draft:

[Participant M]... I draw a plan of ideas (1.2) I have

[Participant K]... I just write in the draft what I think about the topic (1.2)

[Participant F]... I put the ideas I know in outline (1.2)

In two cases, goal setting was mentioned:

[Participant D]...thinking about what I want to write and use goals for it...

[Participant M] before a paragraph writing...I wrote goals on my paragraph

Other strategies such as reading the instructions carefully were not used. Goal-setting can also be inferred from planning.

Speaking of while-writing strategies, in particular of reviewing their writing, the participants reported that they re-read sentences during writing:

[Participant C]... I read again (2.1) every sentence

[Participant R]... I read everything I write twice (2.1)...and I want to see if it is correct

[Participant C]: ... I read what I wrote again (2.1)...to check the verbs and the words...

They also reported their tendency to add and omit sentences as a way to improve their writing:

[Participant F]... I add new sentences (2.2)...when there is less informations [sic.]...

[Participant K]... we add...sentences to make the paragraph clear (2.2)

[Participant K] ...I look for sentences like ones which are not appropriate ...and I take them out

Nevertheless, reviewing strategies are limited to rereading sentences with the aim of modifying the content of the paragraph. Moreover, there is no indication to re-reading the whole text to review its organisation. Re-reading was done without reference to the purpose of the paragraph and to its overall organisation. Reference to the original plan and to the goals set was not indicated.

For revising strategies, participants reported that they read the whole paragraph for a final reading:

[Participant R]... I revised... look at the paragraph (3.1)

[Participant S]... I do a final reading (3.1)

It seems that participants revised by re-reading the paragraph.

Other revising strategies used include editing punctuation and spelling:

[Participant A]...I look carefully at the paragraph (3.1) and words if I wrote them correctly (3.2)

[Participant C] I correct words (3.3) and the punctuation (3.3) I put

In general, participants indicated the use of three revising strategies: re-reading whole paragraph, editing spelling, and punctuation. It appears that the revision process was limited to editing, and it was focused on mechanical changes. Participants did not consider revising the connection between ideas or the use of transitional expressions. Meaning revisions were not made. They edited for word form but did not indicate something about the appropriateness of the words used.

4.2.2. Analysis of Data from Interview on Writing Attitudes

Participants' answers were categorised under thematic headings after several readings of the notes taken. The themes were then organised based on the emerging categories. Asking the participants about their attitudes concerning their paragraph writing ability as well as their attitudes towards paragraph writing in English helped to generate a set of categories and themes presented in table 25 below. The table illustrates the recurring themes: favourable attitudes towards paragraph writing and confidence in one's writing ability.

Coding	Category	Theme
1	1.1 Favourable attitudes	Favourable attitudes towards paragraph writing in English
2	2.1. perceived ability to write a paragraph	Confidence in one's paragraph writing ability

Table 25: Themes Generated from Analysis of Writing Attitudes Interview Data

Speaking of perceived ability to write paragraphs in English, participants found that paragraph writing was easy because they knew how to do it. They compared what they knew before on paragraph writing with what they learned at university through self-assessment. They commented that it was easy and straightforward to do. Consequently, they were able to understand what was demanded of them. Some expressed the view that organising the paragraph was quite easy. Others said that they were aware of the mistakes that they had to avoid and aware of what they had to consider in relation to paragraph writing. Some

described how they wrote the paragraphs. Others described what they were able to do:

[Participant S]: I think it is easy to write a paragraph

[Participant K]: For me it is not difficult, I know how to do it

[Participant F]: Now it is clear for me what it is a paragraph...I can write it

[Participant C]: I know it and know what I have to do

[Participant A]: Now, I know how to write a paragraph and this makes me less worried

[Participant M]: Before I didn't have a clear idea about how to write a paragraph. For now, I know what it takes so it can be easy

[Participant C]: Before, I start to write a paragraph I know what I don't have to write and do

[Participant W]: To write the paragraph we know we use the main idea in the topic sentence and supporting ideas after it and there is the concluding sentence

[Participant N]: Now I think it is direct to write a paragraph with it supporting sentences and concluding one... we can do other things like good grammar and words.

Moreover, participants voiced positive attitudes towards paragraph writing, and they expressed their likes:

[Participant W]: I like it in general because I think it is quite easy

[Participant F]: I got a higher mark...it makes me feel less worried about writing

[Participant M]: For me I see it as a good activity

[Participant R]: What I think is that writing a paragraph is easy for me once I know how to write it...

[Participant N]: In a way, it is less stressful ... I know what to do

The data indicates that participants' attitudes towards writing are favourable in general and according to them were the result of having reached a certain knowledge or ability for paragraph writing. Once they perceived that they have developed their writing ability they consequently voiced positive attitudes towards writing. In relation to this, they said it was a good activity because they knew how to do it.

Conclusion

In the present chapter, the data gathered from the quantitative and the qualitative studies were analysed and presented in two parts. In part 1, data from the quantitative study were analysed using descriptive statistics (i.e. calculating frequency and the mean) and inferential statistics (i.e. using independent samples t-test). This part was organised in three sections, which analysed data from each tool. For analysis of data from the writing strategies scale, independent samples t-test indicated a statistically significant difference between the control and experimental group on the post-scale ($t=3.25$, $Df= 29$, two-tailed " $p=.0019$ "). This indicated improvement in the use of writing strategies.

In section 2, analysis of writing test data indicated a statistically significant difference between the control and the experimental groups in terms of writing ability ($t=-2.53$, $Df= 29$, two-tailed " $p= .014222$ "). In section 3 "analysis of the writing apprehension inventory data", inferential statistics showed a statistically significant difference between the experimental and the control groups ($t= 7.24$, $Df= 29$, two-tailed " $p=<.00001$ "). This has indicated low writing apprehension after the use of self-assessment.

In part 2, data from the qualitative study were gained using interviews on two variables: writing strategies and writing attitudes, and they were analysed using content analysis. Data from writing strategies interview helped us to classify the writing strategies used by participants. It was revealed that they used a set of planning strategies such as organising ideas and brainstorming background knowledge; reviewing strategies such as re-reading, adding and omitting

sentences; revising strategies such as rereading whole paragraph and editing spelling and punctuation. It was also found that participants' use of writing strategies was limited, because reviewing was done without reference to the goals or plans set. Revising was focused on mechanical changes only. On the other hand, data from the writing attitudes interview indicated that participants developed positive attitudes towards paragraph writing and confidence in their writing ability.

Chapter 5: Data Interpretation and Implications

Introduction

This chapter is devoted to data interpretation and implications. The data analysed are further interpreted relying on theories, which deal with self-regulation and the different aspects of metacognition that are directly involved in shaping the writing process. This chapter is organised in five sections.

In section 1, the effect of self-assessment on writing strategies is interpreted relying on an understanding of how components such as metacognitive monitoring and metacognitive control are responsible for the development of students' use of writing strategies. This effect is accounted for based on a discussion of the impact of using self-assessment on the development of metacognitive knowledge and actual implementation of writing strategies.

The effect of self-assessment on writing ability is discussed in section 2. In line with theories on metacognition, which describe metacognitive knowledge and the role of metacognitive control in improving the use of language-related components, the impact of self-assessment on improving writing ability is elucidated in terms of the development of strategic competence.

In section 3, the impact of self-assessment on writing apprehension is accounted for relying on socio-cognitive theories, which identify the relationship between the development of strategic self-regulation and the emergence of affective factors such as writing apprehension and writing self-efficacy. This relationship is described relying on Zimmerman & Risemberg (1997) and Zimmerman & Moylan (2009) cyclical model of SRL.

Recommendations and suggestions for further research are presented in two separate sections. In the 'recommendations' section, a set of pedagogical practices are suggested. Suggestions for further research are presented taking into consideration the limitations in the research findings and the research methodology.

5.1. Effect of Self-assessment on the Development of Writing Strategies

To answer the first research question: “what is the effect of self-assessment on students’ use of writing strategies?” Two types of data were collected: quantitative data from a pre and post writing strategies scale, and qualitative data from a semi-structured interview. Quantitative data were used to test the hypothesis, which stated that there is a difference between the mean score of the group, which uses self-assessment and the mean score of the group, which does not use self-assessment in terms of use of writing strategies.

Initially, data collected from the pre-scale were analysed using independent samples t-test. This has indicated that the two groups were homogeneous in terms of using writing strategies ($t=0.15$, $Df= 29$, two-tailed “ $p=.880037$ ”, $\alpha=0.05$) (table 7/chapter 4). The results were helpful to ensure that any measurable effect is due to the experimental intervention.

After implementing the treatment, which consisted of a self-assessment of writing strategies checklist—inclusive of a goal-setting form, and a checklist of paragraph writing, the post-scale was administered to both experimental and control groups.

Analysis of the post-scale data using the independent samples t-test ($t=3.25$, $Df= 29$, two-tailed “ $p=.0019$ ”, $\alpha=0.05$) (table 10/chapter 4) allowed for rejecting the null hypothesis which stated that there is no difference between the control group and the experimental group in terms of use of writing strategies after the implementation of self-assessment. Thus, the alternative hypothesis, which stated that there is a difference between the mean score of the group, which uses self-assessment and the mean score of the group, which does not use self-assessment in terms of use of writing strategies was supported.

It was assumed that the experimental group outperformed the control group in terms of strategy use. The strategies investigated were pre-writing strategies, while-writing strategies, and post-writing strategies. Analysis of qualitative data using content analysis (Table 24/Chapter 4) indicated that the participants used three types of writing strategies; namely,

- (1). planning strategies for brainstorming background knowledge, organising ideas, and goal-setting strategies;
- (2). monitoring strategies for re-reading sentences, adding sentences, and omitting sentences;
- (3). evaluating or revising strategies for re-reading whole paragraph, editing spelling, and editing punctuation.

The effect of using self-assessment on the development of writing strategies is interpreted in relation to the improvement of students' strategic self-regulation. The findings suggest that self-assessment was a self-monitoring tool, which helped students to obtain a clear view of their goals, monitor the process of attaining their goals, and obtain feedback that facilitated closing the gap between their current performance and the expected performance. In other words, self-assessment was a tool, which facilitated the process of reflecting on writing standards and the achievement of goals.

As a self-regulation tool, self-assessment was a tool, which led to the growth of students' metacognition. Working with the criteria of writing strategies checklist and self-assessment of paragraph writing and applying them to monitor and assess the writing process and product involved the students in metacognitive experiences. Through metacognitive experiences, students underwent problem-solving and reflection processes, which were responsible for internalisation of metacognitive knowledge and the processing of metacognitive writing strategies. This was due to the fact that the criteria of self-assessment reflected a set of metacognitive strategies that matched the requirements of the writing process and covered cognitive writing strategies; thus resulting in an increased awareness of writing strategies.

In line with theoretical frameworks (e.g. Hacker, Keener, & Kircher, 2009; Harris, Santangelo, & Graham, 2010), it can be argued that the use of self-assessment criteria to monitor the use of writing strategies developed students' task schemas which refer to metacognitive knowledge about strategies needed for

paragraph writing. Moreover, self-assessment resulted in developing their ability to use the monitor, which helped them to select and sequence writing strategies according to task demands.

It seems that the students used self-questioning, which is an aspect of metacognition. This enabled them to enter into internal discussions about the quality of their writing performance. Internal discussions helped them to apply problem solving necessary for recognising problems in writing performance, developing a mental representation of breakdowns, and developing a solution for strategy selection.

5.1.1. Effect of Self-assessment on the development of metacognitive knowledge

It can be argued that self-assessment helped students to acquire declarative, procedural, and conditional knowledge of writing strategies. Declarative knowledge involves knowledge of writing strategies, for instance, planning, goal setting, reviewing, revising, and editing. Procedural knowledge is about knowing how to use these strategies. Conditional knowledge refers to knowledge of when and why to use writing strategies (Hartman, 2001). Ability to apply writing strategies as indicated by the scale data can be linked to acquisition of these aspects of metacognitive knowledge, which are pre-requisite to the actual application and processing of writing strategies and to diagnosing any weaknesses in the effectiveness of the strategies used.

5.1.2. Effect of Self-assessment on the Development of Metacognitive Strategies

It can be argued that the use of self-assessment helped students to develop the use of metacognitive strategies necessary for conscious planning, monitoring, and evaluating the use of cognitive strategies in writing. The use of metacognitive strategies is a type of strategic self-regulation, which centres on initiating actions that serve the attainment of writing goals.

The development of strategic self-regulation helped students to coordinate action between two processes: metacognitive monitoring and metacognitive control, which provided the working basis for the implementation of writing strategies such as planning, monitoring, and evaluating. Through metacognitive monitoring, students were able to observe themselves, monitor their writing process, and evaluate the effectiveness of the strategies they selected. Accordingly, Hacker, Keener, & Kircher (2009), maintained that metacognitive monitoring is an awareness of the stages of writing process, which can inform decision-making vis-à-vis the implementation of metacognitive writing strategies.

In addition, it can be argued that the use of self-assessment increased students' potential for metacognitive control, which is an important process for the selection, substitution, and management of cognitive strategy use. In line with this, metacognitive regulation or control was claimed to be essential for the selection of writing strategies (Hacker, Keener, & Kircher, 2009).

The findings seem to suggest that students were able to make accurate monitoring which resulted in ability to diagnose task demands. Consequently, they were able to apply strategies and analyse their effectiveness in addressing task demands. The use of metacognitive monitoring was responsible for leading students into processing monitoring strategies such reading and re-reading. These strategies were used to monitor the writing process and the quality of written productions. Second, they were also able to apply metacognitive control, which helped them to draft ideas and edit.

It appears that students were able to use metacognitive monitoring and control to monitor and evaluate their writing process. They used these self-regulation processes to respond to their needs and to diagnose breakdowns in performance. To solve recurrent problems, students may have resorted to problem solving and they may have reflected on their writing performance to obtain feedback, which prompted their ability to set and evaluate the attainment of goals.

In line with this, Heidarian (2016) utilised a self-reporting questionnaire to collect data on the use of writing strategies after implementing self-assessment as

a self-report questionnaire and in a form of a scoring rubric that participants used to evaluate the paragraphs they have written and their writing strategies as part of an eight-week period. The study indicated significant difference between the control and the experimental groups in terms of writing performance. Paired t-test statistics indicated significant results in terms of using planning and revising strategies.

Elgadal (2017) argued that using self-assessment criteria such as content, organisation, language, and mechanics helped participants to revise their writing by implementing a set of strategies to make surface and meaning revisions. Participants implemented a set of operations to write and to make meaning-preserving changes or meaning-altering changes that correspond to monitoring strategies.

In sum, it can be maintained that students were able to solve problems during writing. When they experienced a breakdown, they referred to previous self-assessment experiences; notably, the criteria presented in the writing strategies checklist. Consequently, they used the monitor to allocate necessary strategies before writing such as planning and goal setting; and while-writing strategies such as re-reading. Moreover, problem solving helped them to use control strategies such as editing as a way to evaluate the attainment of goals.

The analysis of quantitative data helped us to reject the null hypothesis at 0.05 probability level. Nevertheless, the analysis of qualitative data allowed us to sort out the writing strategies that participants did not use. Qualitative analysis showed that the following strategies were not used:

1. Reading the instructions;
2. Revising development of ideas or content;
3. Revising organisation of ideas;
4. Modifying plans;
5. Regenerating ideas;
6. Referring to the goals set or the plans made when revising and reviewing;

7. Editing for transitional expressions and grammar; and
8. Editing for word meaning.

More importantly, participants referred to a set of strategies used in a linear way. They did not refer to using writing strategies recursively. It seems that the absence of such processes is due to participants' proficiency level. To explain, less-skilled writers tend to write in a linear way; i.e., they plan, take notes, write, and then edit (Raimes, 1985).

The plans that less-skilled writers make are fixed. This means that they are set at initial phases of writing, and they are not generally modified in the course of writing with reference to adjustments in the writing process and the goals of writing. Less-skilled writers tend to make form-based revisions rather than meaning-based revisions (Hyland, 2003; Heine, 2010). Despite the use of different writing strategies, students were not able to link these strategies. This means that the strategies were used sequentially. For instance, they revised without reference to the goals or plans of writing.

5.2. Effect of Self-assessment on the Development of Writing Ability

To answer the second research question: “what is the effect of self-assessment on students' writing ability?” Quantitative data from a pre and post-writing test were collected to test a hypothesis, which stated that there is a difference between the mean score of the group, which uses self-assessment and the mean score of the group, which does not use self-assessment in terms of writing ability.

Initially, data collected from the pre-test were analysed using independent samples t-test. This has indicated that the two groups were homogeneous in terms of writing ability ($t=0.15$, $Df= 29$, two-tailed “ $p=.884275$ ”, $\alpha=0.05$) (table 13/chapter 4). The results were helpful to ensure that any measurable effect is due to the experimental intervention.

After implementing the treatment, which consisted of a self-assessment of writing strategies checklist—inclusive of a goal-setting form, and a checklist of

paragraph writing, the post-test was administered to both experimental and control groups. Analysis of the post-test data using the independent samples t-test ($t=-2.53$, $Df= 29$, two-tailed “ $p=.014222$ ”, $\alpha=0.05$) (table 16/chapter 4) allowed for rejecting the null hypothesis which stated that there is no difference between the control group and the experimental group in terms of writing ability after the implementation of self-assessment. Thus, the alternative hypothesis, which stated that there is a difference between the mean score of the group, which uses self-assessment and the mean score of the group, which does not use self-assessment in terms of writing ability was supported.

Based on the findings, it was assumed that the experimental group outperformed the control group in terms of the following elements: content, grammar, organisation, style and quality of expression, and mechanics. The results may indicate that students developed their ability to write paragraphs. Referring to writing process model by Hayes & Flower (1980), it can be assumed that self-assessment helped students to develop their ability to use the monitor, which is the repository of elements of strategic competence; namely, goal setting, assessment and planning (Bachman & Palmer, 1996). The monitor is crucial for coordinating action between the processes of strategic competence, which are responsible for the management of language and organisational knowledge.

Besides, relying on theories on metacognition (e.g. Raphael, Englert, & Kirschnen, 1989), it can be assumed that the use of self-assessment developed students' metacognition in terms of both metacognitive knowledge and the use of metacognitive processes necessary for planning, translating, and evaluating. Metacognitive knowledge helped students to apply their knowledge about paragraph structure and language form. On the other hand, metacognitive processes improved their ability to use the monitor.

5.2.1. Effect of Self-assessment on the Development of Metacognitive Knowledge

First, we need to discuss the role of self-assessment in involving students in metacognitive experiences, which are conscious cognitive experiences that make

students aware of breakdowns during the composing process (Pintrich, 2002). Thus, it can be argued that using self-assessment criteria helped students to be aware of the weaknesses in their written compositions. The ability to engage in metacognitive experiences triggered their readiness for self-questioning, an important facet of metacognition. Through self-questioning, they were able to evaluate their language and communicative goals.

In line with theories of metacognition (e.g. Harris, Santangelo, & Graham, 2010; Schraw, 2001), the development of students' metacognitive knowledge can be explained based on two aspects. First, it can be seen that students developed declarative knowledge of the components of the paragraph (i.e. knowledge of topic, supporting, and concluding sentence). Second, they may have developed procedural knowledge of how to develop a topic in a paragraph, how to use language elements and knowledge of how to organise ideas in a paragraph.

5.2.2. Effect of Self-assessment on the Development of Metacognitive Processes

It can be argued that working with the criteria of self-assessment contributed to the improvement of metacognitive processes, which work as executive processes necessary for the activation and manipulation of aspects from long-term memory such as language and content. In this vein, it can be argued that through self-assessment, students built their strategic competence for goal setting, assessment, and planning.

This may suggest that students developed strategic competence responsible for executing all the aspects of language knowledge, namely, grammar, vocabulary, organisation, and pragmatic knowledge. It can be assumed that the development strategic competence is key to maintaining the function of the monitor, which is responsible for identifying the language elements needed to reach a communicative goal.

It can be said that students' use of self-assessment criteria for paragraph writing helped them build their ability to use the monitor. The latter is a metacognitive operator necessary for directing and coordinating action between all

metacognitive processes of writing; namely, planning, translating, and revising (Hayes & Flower, 1980). Using the monitor, students were able to decide when and how to use what linguistic elements. In other words, it seems that the ability to use the monitor guided students in the process of organising their ideas and resourcing linguistic elements according to communicative goals.

Referring to metacognitive processes involved in writing (Hayes & Flower, 1980), it can be argued that self-assessment improved students' ability to process the monitor, which facilitated the following processes: generating linguistic items and assessing their appropriateness, planning which item to retrieve from long-term memory, organising the items, setting communicative goals, and monitoring the attainment of goals.

Relying on theories on metacognition and writing (e.g. Hacker, Keener, & Kircher, 2009), it can be maintained that students developed metacognitive monitoring and control which were responsible for assessing and improving the language produced. Through metacognitive monitoring, students were able to exercise accurate reviewing which helped them to ensure the conformance between the ideas produced and their intended communicative goals. This ensured organisation of ideas and clarity in expressing ideas. In addition, they seem to have developed the exercise of metacognitive control, which helped them to check the appropriateness of language elements to express the ideas produced. This had direct effect on the accuracy of words selected, grammar and mechanical choices. Therefore, it can be argued that through self-assessment students:

- (a) Developed strategic competence that helped them to employ the monitor, which is responsible for maintaining action between planning, translating, and revising processes. This allowed for generating relevant ideas and language elements, monitoring the appropriateness of ideas to communicative goals, assessing appropriateness of language used to the ideas produced; and organising them.

- (b) Used goal setting to decide which item (i.e. idea, word, preposition, or organisation pattern...etc.) to use to reach a communicative goal and retrieved it from long-term memory relying on metacognitive knowledge.
- (c) Assessed and analysed the language use situation (i.e. paragraph writing). They scrutinised the language items needed and assessed their conformity to language use situation.
- (d) Planned: decided how to use language items and implemented them according to task demands.

The positive effect of self-assessment on the development of writing ability was reported in different studies. For instance, Heidarian (2016) implemented a scoring rubric for a period of 8 weeks, and found a significant difference between the control and the experimental groups in terms of writing ability, which was measured in terms of content, organisation, and language use. Using repeated measure ANOVA indicated gradual improvement of participants' writing proficiency after using self-assessment in a form of an ESL composition profile for a period of four weeks. This scoring grid helped the participants to self-assess their compositions after teacher's explanation of criteria. Based on the research findings, Fahimi & Rahimi (2015) argued that self-assessment helped participants to improve their writing achievement through reflection.

Mazloomi & Khabiri, (2016) analysed participants' scores using independent samples t-test, which contributed to rejecting the null hypothesis, which stated that the use of self-assessment in writing does not have a significant effect on students' writing. With a large effect size $r=.62$ at $p < .05$, it was assumed that self-assessment had significantly improved the writing ability of the sample. The treatment encompassed the use of a self-assessment checklists and rubrics for a period of eight sessions.

Elgadal (2017) argued that using self-assessment criteria such as content, organisation, language, and mechanics helped participants to revise their writing by implementing a set of strategies to make surface and meaning revisions at the level of content, organisation, and language; and this has led to the improvement

of the writing product. The study involved the implementation of self-assessment sheets as part of expository writing for a period of two months.

Comert & Kutlu (2018) used a scoring grid for assessment of first and final drafts. Analysis of quantitative data using two-factor ANOVA indicated that writing achievement of the experimental group was significantly different from that of the control group. Moreover, it was found that the experimental group continuously increased their average compared to the control group whose increase was slow. To add, the experimental group increased their average for paragraph organisation, language use, and content.

5.3. Effect of Using Self-assessment on the Decrease of Writing Apprehension

To answer the third research question: “what is the effect of self-assessment on participants’ writing apprehension?” A pre and post inventory were administered to both control and experimental groups. The two groups were homogeneous in terms of writing apprehension before implementing self-assessment ($t=-1.27$, $Df= 29$, two-tailed “ $p= .210578$ ”) (table 20/Chapter 4). Data from the independent samples t-test were helpful in rejecting the null hypothesis, which stated that there is no statistically significant difference between the control and experimental groups on writing apprehension after the use of self-assessment ($t= 7.24$, $Df= 29$, two-tailed “ $p<.00001$ ”, $\alpha=0.05$) (Table 23/Chapter 4). Thus, the alternative hypothesis, which stated that there is a difference between the group, which uses self-assessment and the group, which does not use self-assessment in terms of writing apprehension was supported.

It was found that the experimental group had less writing apprehension compared to the control group. In addition, data from content analysis (Table 25/Chapter 4) revealed that the participants voiced positive attitudes towards paragraph writing and expressed high perceptions of their paragraph writing ability. These findings seem to suggest that the use of self-assessment for monitoring the writing process and for evaluating the paragraphs was helpful in decreasing students’ writing apprehension. Specifically, self-assessment built their

self-efficacy beliefs for writing and positive attitudes towards paragraph writing. Knowing that writing apprehension originates from teacher's evaluation of writing and from low perceptions of writing competence (Daly, 1978, 1879), it can be maintained that self-assessment obscured these two sources, because it directly involved students in evaluating their own writing processes and products, and consequently it built their knowledge of the criteria of paragraph writing.

It can be said that students' writing apprehension decreased because they developed interest in paragraph writing, which was coupled with increased motivation. In line with this, Daly (1978) maintained that writing apprehension is influenced by writers' attitudes and motivation. Students may have developed increased willingness to write paragraphs after using self-assessment.

Based on socio-cognitive theories, the effect of self-assessment on writing apprehension can be explained with reference to writing self-efficacy. After the use of self-assessment, students may have developed positive self-judgements concerning their ability to monitor their writing. Through monitoring, they entered into feedback loops, which influenced their reactions. As a result, they formed positive reactions evident in lesser writing apprehension.

Cheng (2002) claimed that writing apprehension is determined by writers' self-efficacy beliefs. It was found that students had positive perceptions concerning their ability as writers. Thus, writing apprehension may have decreased, since they considered their improved ability to manage the writing process. In addition, Kim (2006) maintained that writing apprehension is the result of having writing difficulties. It can be said that the students had less difficulties with writing. These are expressed in terms of improving the use of writing strategies necessary for managing the writing process, and an ability to select linguistic items necessary to improve the quality of the written product. Consequently, their writing apprehension decreased.

In line with this, Fathi & Khodabakhsh (2020) found a significant effect of self-assessment on the decrease of writing apprehension. Using a two paired-samples t-test, analysis indicated a statistically significant decrease of writing

anxiety from the pre to the post-test ($t(21) = 4.51, p < 0.00$). The mean decreased from 71.23 to 67.24. It was argued that self-assessment increased students' opportunities to reflect on the writing process and thus to avoid cognitive anxiety, which is directly related to writing anxiety. Second, self-assessment was seen as a tool, which can diminish factors related to writing anxiety such as negative expectations of writing which can stem from students' ignorance of criteria of good work.

Relying on Zimmerman & Risemeberg (1997) and Zimmerman & Moylan (2009), we can interpret how self-assessment decreased students' writing apprehension. First, analysis of the first and second research questions data revealed that students developed the use of both writing strategies and writing ability. This entails that they developed their use of metacognitive writing strategies and their writing achievement.

From a socio-cognitive perspective, the ability to use strategies according to task demands involves writers in a feedback loop, which represents a set of information they gain about their efficacy as writers. When this feedback is positive; i.e., indicates successful use of strategies or control of the task, writers can acquire self-efficacy beliefs. These beliefs can decrease their writing apprehension (Pajaras, 2003; Zimmerman & Bandura, 1994). Therefore, it can be argued that when writing performance improved, students' beliefs in their own abilities increased. Consequently, when self-efficacy beliefs increased, apprehension decreased.

Teng et al. (2017) referred to two major sources of writing self-efficacy: linguistic and strategic self-efficacy. In line with this, students developed their metacognitive knowledge of writing strategies and were to a certain extent able to apply them to the writing task. This resulted in boosting their strategic self-efficacy beliefs. Moreover, they may have developed their linguistic self-efficacy, since they were able to apply appropriate linguistic elements for paragraph writing. This had major effect on nullifying their writing apprehension.

According to Zimmerman & Bandura (1994), self-efficacy develops through knowledge of the expected outcome, which is knowledge of the required standards, and through efficacy expectations, which are knowledge and beliefs about what one is able to achieve. In this vein, students' evaluations about their own abilities were to a certain extent positive, because they acquired knowledge of the expected outcome and knowledge of their capability as writers. They may have applied this knowledge to judge themselves as efficacious, and had less writing apprehension.

In line with Zimmerman & Moylan (2005), self-efficacy as an adaptive trait has resulted from students' ability to apply writing strategies, mainly, goal-setting, planning, monitoring, and evaluating. Through a feedback loop, which encompasses awareness of how strategies are implemented and what standards need to be applied to the task, students increased their self-efficacy perceptions. Consequently, defensive traits such as writing apprehension were nullified.

Knowing that self-judgments are mutually related to self-reactions (Panadero & Alonso-Tapia, 2014), students' low writing apprehension as a positive reaction emerged as they positively judged their ability as writers. Coupled with formulating positive judgments, students had less writing apprehension, because they formed positive expectations concerning their potential as writers, and this had led to maximising positive attitudes towards writing.

Referring to a study conducted in an EFL context by Fathi, Afzali, & Parsa (2021), it was found that writing self-efficacy statistically improved from the pre-test to the post-test ($t(16) = -6.68, p < 0.00$) after the use of self-assessment. Thus, was assumed that self-assessment developed students' familiarity with standards of quality work and increased their motivation and positive perceptions. Consequently, this has led to improving their writing self-efficacy.

5.4. Implications

Aside from the role of teachers' feedback that may be provided as part of traditional assessment, the impact of personal feedback that students obtain through self-assessment can be explained in terms of growing their metacognitive potential including both metacognitive knowledge and metacognitive monitoring which are key to the development of self-regulation of writing. The demand for implementing strategic learning tools such as self-assessment is also fundamental for mitigating the negative affective impact of traditional assessment envisaged in writing apprehension.

Self-assessment is a valuable tool for learning and can help students critically analyse paragraph-writing tasks. It is quite beneficial to them because it specifies the criteria of process writing and the fundamental linguistic elements needed for paragraph writing. To implement self-assessment for paragraph writing, the following points can be suggested:

- a. Developing self-assessment checklists which contain the same criteria used by the teacher for evaluation;
- b. Using criteria which match course objectives;
- c. Implementing self-assessment by focusing on a discussion of criteria presented in the checklists;
- d. Providing self-assessment training with appropriate periods of time;
- e. Encouraging students to work with self-assessment;
- f. Using goal-setting forms in addition to checklists;
- g. Giving adequate time for ongoing self-monitoring of the writing process;
- h. Encouraging students to use drafts when using self-assessment checklists;
- i. Helping students to set goals and refer to them continuously for improving subsequent tasks;
- j. Devising self-assessment checklists for paragraph writing which integrate the necessary components of academic writing, namely, rhetorical organisation and awareness of audience.

- k. Identifying clear self-assessment criteria, which can facilitate the assessment process, and which can help students understand what is required;
- l. Raising students awareness of the use of self-assessment for goal attainment not task completion or grading;
- m. Providing ample time for self-assessment practice.
- n. Providing samples of self-assessed tasks for adequate training;
- o. Providing direct instructions for the use of self-assessment;
- p. Giving students opportunities to review and improve their work in progress.
- q. Familiarising students with the role that self-assessment plays in improving their writing;

To sum up, self-assessment improves students' awareness of which metacognitive strategies to use. Students can develop their ability for self-assessment when they set clear goals for writing which can be articulated through self-assessment criteria. Moreover, self-assessment makes students engaged in the writing process as they actively reflect on it. Through self-assessment, students become more committed to improving writing outcomes, and more connected to the writing process. Thus, they can build positive affective factors. Student self-assessment mandates that students learn to take responsibility for their learning by reflection, goal setting, and strategy adjustment.

5.5. Recommendations for Future Research

Despite the limitations (see section 3.4, chapter 3), the findings of the study can be viewed as significant and it would be highly recommended to consider replicating the study by adjusting its limitations. This study has yielded several recommendations for further research:

1. The present research could be extended by addressing issues that were referred to in the methodological limitations section in Chapter 3. For example, the use of a random sample can affect the research design adopted and validity of data analysis, especially inferential statistics.

2. The use of other data collection tools such as think aloud protocol to investigate the effect of self-assessment on the use of writing strategies might yield data that are more valid.
3. Several considerations for further study might include replication with different settings and populations.
4. Implementing self-assessment with more sessions can enhance scaffolding and provide adequate training in using self-assessment.
5. Using repeated measures design to investigate progress over time especially in relation to the variable writing ability might increase validity of test scores.
6. Using large samples of subjects.
7. Using trained readers (i.e. experienced teachers) to evaluate paragraphs can increase reliability of scores and the statistics.
8. The study recommends investigating the effect of self-assessment on goal-setting strategies, and on writing self-efficacy.

Conclusion

This chapter has discussed the possible effect of self-assessment on the development of the variables of the study. The effect was accounted for in line with theories on metacognition (e.g. Schraw, 2001; Hacker, Keener, & Kircher, 2009; Harris, Santangelo, & Graham, 2010) and theories on self-regulation (e.g. Zimmerman & Risemberg, 1997; Zimmerman & Moylan, 2009).

In section 1, it was suggested that self-assessment improved students' metacognitive knowledge of writing strategies. In addition, self-assessment was a tool that increased their awareness of different writing strategies, thus leading to increased ability to apply these strategies to task demands. In this way, it led to enhancing their strategic self-regulation. Limited use of writing strategies was attributed to students' proficiency level.

In section 2, it was maintained that self-assessment developed students' writing ability. This seems to be the result of building metacognitive knowledge of the different components of paragraphs. In addition, it appears that students improved their ability to use the monitor, which is responsible for monitoring language production and for assessment of communicative goals. As a result, students were able to assess appropriateness of language items and to select the right item and the right structure.

In section 3, it was found that self-assessment helped students to decrease their writing apprehension. To interpret data, socio-cognitive theories (e.g. Zimmerman & Risemberg, 1997; Zimmerman & Moylan, 2009) were useful to maintain that after developing the use of planning, goal-setting and monitoring strategies, students decreased their writing apprehension, which was the result of building self-efficacy beliefs and positive attitudes towards paragraph writing.

Based on the research findings, implications for study skills teachers were provided. These implications favour the use of self-assessment. Suggestions for further research were advanced including the selection of a random sample.

General Conclusion

Assessment in higher education in Algeria has undergone changes after the implementation of the LMD system. Consequently, the Algerian university tried to follow the requirements of this global system, which stresses the effectiveness of learner-centred approaches. This system also highlights the efficiency of alternative forms of assessment in improving the quality of teaching and learning.

Despite the emergence of the LMD system, a number of objectives related to innovation of assessment practices are not reached, because there is still reference to the old paradigm, which centres on teacher-based assessment. The context under study is currently experiencing a period where research studies are conducted to question the traditional forms of assessment. There is a prevalent notion that although the LMD system is currently in force in the Algerian university, foundations for reform in assessment are still not present. There still seems to exist perpetuation of the dichotomy between assessment and learning with reference to traditional approaches of assessment.

Assessment is a central component in the language learning process, and most university students consider and focus more on assessment than any other aspects of the course, because it can have a direct impact on their learning experiences, their productivity, and their motivation. Consequently, introducing learner-centred assessment practices such as self-assessment has the power to drive students' learning, knowing that it has direct consequences on their productivity as students and their attitudes towards the course.

The study aimed to investigate the effect of self-assessment on writing strategies, writing ability, and writing apprehension. Self-assessment was explored in light of the fact that it is widely accepted to be vital to the learning process of EFL students. It is a learning strategy, which involves the students in monitoring their language learning progress and accomplishment. It is a strategy, which needs to be acquired by university students, and it is essential in the age of ICT's and for

21st century learning. Additionally, the study is motivated by the need to understand the potential of self-assessment in the improvement of self-regulation of writing.

This research on self-assessment was conducted with sixty first year students enrolled in the English degree course at the University of Algiers 2. As an instrument for learning, self-assessment appears to need implementation in first year classes, since the evaluation system is portrayed by the utilization of summative testing systems, which are solely carried out by the teacher. This approach quantifies students' attainment of course objectives in terms of a summative score. In particular, the teacher holds the role of providing feedback regarding the quality of work. This lessens students' potential to reflect on their learning processes and products.

Notwithstanding the different findings from self-assessment research in Algeria, numerous fields actually stay open to additional examination. While these studies researched the effect of self-assessment on writing ability (e.g. Hachemi, 2013), writing strategies (Kadri, 2019), and writing self-efficacy (Kadri, 2019), other aspects of writing such as writing apprehension were not explored, only in relation to peer-assessment (Moussaoui, 2013). Motivated by such body of research, the study was designed to obtain data, which can assist in researching the effect of self-assessment on writing strategies, writing ability, and writing apprehension.

The literature review was composed of two chapters covering the independent variable and the dependent ones. Chapter 1 dealt with the literature on self-assessment. It included a review of metacognitive processes and a theoretical analysis of the impact of metacognition on different components of EFL writing, namely, writing strategies and writing ability. Research studies (e.g., which investigated the effect of self-assessment on writing strategies (e.g. Heidarian, 2016; Elgadel, 2017) and writing ability (e.g. Fahimi & Rahimi, 2015; Mazloomi & Khabiri, 2016; Comert & Kutlu, 2018) were reviewed in order to portray the impact of metacognition.

This chapter has also examined theories on self-regulation of writing, which were helpful to understand the effect of self-assessment on writing apprehension. Research studies (e.g. Fathi & Khodabakhsh, 2020; Fathi, Afzali, & Parsa, 2021) were analysed to give an account of the effect of self-assessment on writing apprehension and writing self-efficacy. Analysis of theoretical frameworks on self-assessment revealed that self-assessment entails the activation of metacognitive processes. Moreover, it was noted that self-assessment is a self-regulation process, which can involve different strategic and affective reactions.

Chapter 2 encompassed an analysis of different components of EFL writing, including writing strategies, writing ability, and writing apprehension. It was claimed that the use of writing strategies is determined by the activation of metacognitive components such as metacognitive monitoring and metacognitive control. In relation to writing ability, it was maintained that metacognition is responsible for activating the monitor, a component, which maintains accurate monitoring of language, including selection and assessment of the language items used. From a socio-cognitive perspective, it was argued that ability to use strategic self-regulation processes (i.e. using metacognitive writing strategies) is a predictor of nullifying aversive reactions such as writing apprehension.

In order to reach its aim, the study sought to answer the following research questions:

Research Question 1: What is the effect of self-assessment on students' use of writing strategies?

- a. Does self-assessment help participants develop their writing strategies?
- b. What are the strategies that participants used to write paragraphs?

Research Question 2: What is the effect of self-assessment on students' writing ability?

- a. Does self-assessment help participants develop their writing ability?

Research Question 3: What is the effect of self-assessment on students' writing apprehension?

- a. Does self-assessment help participants decrease their writing apprehension?
- b. What are participants' attitudes towards paragraph writing in English?

The empirical study described in chapter 3 followed an embedded mixed-methods design, which involved collecting quantitative data through a quasi-experiment and qualitative data using interviews. For the quasi-experiment, three research questions with their corresponding hypotheses were advanced. The three hypotheses proposed that there is a difference between the control group and the experimental group in terms of (a) the use of writing strategies, (b) writing ability, and (c) writing apprehension. The treatment involved implementing self-assessment in the experimental group while withholding it from the control group. It consisted of administering a writing strategies checklist inclusive of a goal-setting form and a checklist of paragraph writing.

The activities were administered as part of four writing tasks, which required participants to write paragraphs on a set of topics. To collect data, the following tools were used: (a) a pre and post writing strategies scale, (b) a pre and post-test of writing, and (c) a pre and post writing apprehension inventory.

Quantitative data were analysed using descriptive and inferential statistics. On the pre-tests, analysis revealed that the control and the experimental groups are statistically significantly homogeneous in relation to the three variables. For the post-test data, analysis indicated that the experimental group scores were statistically significantly higher than the control group scores on the three variables. From the data, it was suggested that self-assessment helped participants to develop the use of writing strategies and their writing ability, and to decrease their writing apprehension.

For the qualitative study, two research questions were advanced. The first one sought to explore participants' use of writing strategies, while the second one sought to explore their attitudes towards paragraph writing in EFL. Qualitative data

were gathered by means of semi-structured interviews on writing strategies and writing attitudes. Content analysis was used to sort out major themes which revealed that the participants used three types of writing strategies; namely, planning, reviewing, and revising/editing strategies. Nevertheless, the use of strategies was limited because students used the strategies in a sequential order without referring to their writing goals and plans and without considering meaning revisions or connection between ideas. For the second research question which explored participants' writing attitudes, it was found that students developed positive attitudes towards paragraph writing in English and high perceptions of their paragraph writing ability.

Taking into consideration contradictory findings and limitations of the study, there are a few noteworthy results from the present study, which bear some pedagogical value for assessment practices. The present study on the effect of self-assessment on academic writing ability has demonstrated that:

- a) Students who used self-assessment to monitor their writing performance were able to develop an awareness of writing strategies and an ability to implement them throughout the writing process. This supports research findings (e.g. Heidarian, 2016; Elgadel, 2017) which indicated that students can revise and plan their writing if they are trained in using self-assessment and if they are provided with a set of criteria to implement. Thus this study is in line with theories which referred to the role of self-assessment in improving strategic self-regulation; i.e., the use writing metacognitive strategies (e.g. Hacker, Keener, & Kircher, 2009; Harris, Santangelo, & Graham, 2010).
- b) Students who used self-assessment to assess their compositions or the final product for the purposes of improvements were able to improve their test scores; i.e., the use of grammar, content, organisation, style and quality of expression, and mechanics. The findings stand as a rejoinder to recent research findings (e.g. Fahimi & Rahimi, 2015; Mazloomi & Khabiri, 2016;

Comert & Kutlu, 2018) which showed that self-assessment improved students' writing ability in terms of content, organisation, and grammar.

- c) Students who use self-assessment to assess their writing had lower writing apprehension, because they developed positive attitudes towards paragraph writing in English and higher perceptions of their writing ability. In line with this, Fathi & Khodabakhsh (2020) found that self-assessment can help students reduce their writing apprehension. Furthermore, Fathi, Afzali, & Parsa (2021) found that self-assessment helps students to improve their writing self-efficacy. This concurs with socio-cognitive theories (e.g. Zimmerman & Moylan, 2009) which established a strong link between the use of metacognitive strategies and the decrease of debilitating affective factors such as writing apprehension.

In line with theoretical frameworks (e.g. Hacker, Keener, & Kircher, 2009; Pintrich, 2002; Zimmerman & Moylan, 2009), it was maintained that self-assessment developed students' metacognitive knowledge and strategy use. On the one hand, it was suggested that students developed strategic self-regulation, which resulted in nullifying aversive reactions evident in writing apprehension.

To expand on this point, self-assessment is a tool, which helped students to apply strategic self-regulation through metacognitive monitoring and metacognitive control. The latter are responsible for implementing metacognitive writing strategies and for selecting and assessing appropriate language items. On the other hand, self-assessment helped students to decrease their writing apprehension, because they developed knowledge of the expected outcome, self-evaluative standards necessary for self-judgment, ability for monitoring the writing process, and positive attitudes towards paragraph writing.

Data to answer the first research question indicated that self-assessment improved students' metacognitive knowledge of writing strategies. Moreover, students improved their awareness of different writing strategies, thus they were able to apply these strategies to task demands. Thus, it was maintained that self-

assessment developed students' strategic self-regulation. Limited use of writing strategies was attributed to students' proficiency level.

Data to answer the second research question revealed that self-assessment developed students' writing ability. As a result, they built metacognitive knowledge of different components of paragraph writing in addition to developing the use of the monitor which is responsible for monitoring language production and for assessment of language items; i.e., students were able to assess appropriateness of a language item and able to select the right item and the right structure.

Data to answer the third research question revealed that self-assessment decreased writing apprehension. Based on socio-cognitive theories, it was argued that after developing the use of planning, goal-setting and monitoring strategies, students developed self-efficacy beliefs and positive attitudes towards paragraph writing, which resulted in decreasing their writing apprehension.

Drawing on the research findings, it was recommended that first-year study skills teachers use self-assessment checklists, which reflect course-based objectives, use goal setting, encourage students to refer to the goals they set, encourage students to use self-assessment for goal attainment not task completion or grading, and giving students opportunities to review and improve their work in progress.

Finally, some limitations were pointed out such the use of convenient sampling to test hypotheses and the possibility that threats to the quasi-experiment existed. Suggestions for further research are stated in terms of the need to determine the effect of self-assessment on writing strategies using think-aloud protocol. In addition, further research is needed to investigate the effect of self-assessment with other samples from other settings in Algeria.

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Appendix A: Participants' Information Sheet

Dear students,

Would you please answer the questions below? This will be used for research purposes and will be totally confidential.

Age:

Gender:

Stream you followed in your high school studies:

Baccalaureate English exam score:

Do you attend additional English writing courses outside the university?
.....

Do you attend additional tutoring from a writing centre (English)?
.....

Thank you very much for your cooperation

Appendix B: Writing Strategies Scale

Dear participant,

Below are a series of statements about writing on a topic (paragraph writing task). There are no right or wrong answers to these statements. Please indicate the degree to which each statement applies to you by choosing from these options: **(1) very true of me; (2) a little bit true of me; (3) don't know; (4) not really true of me; (5) very untrue of me.** Try to be as honest as possible. Thank you

In this section, you will find statements about the different stages of writing in English: before writing, while writing, and when revising. Please read each statement and circle the option indicating **how true of you the statement is.**

Category 1: Before I start writing a paragraph in English

1) I read the instructions

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

2) I start writing without having a written or mental plan

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

3) I think about what I want to write and have a plan in my mind, but not on paper

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

4) I note down words and short notes related to the topic

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

5) I write an outline of my paragraph

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

6) I write notes or an outline in my native language or another language

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

Category 2: When writing a paragraph in English

7) I start with the topic sentence

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

8) I stop after each sentence to read it again

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

9) I stop after a few sentences covering one idea

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

10) I reread what I have written to get more ideas

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

11) I go back to my outline and make changes in it

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

12) I write bits of the text in my native language or another language and then translate them into English

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

13) I check my grammar and vocabulary

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

14) I simplify what I want to write if I don't know how to express my thoughts in English

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

15) If I don't know a word in English, I write it in my native language or another language and later try to find an appropriate English word

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

16) If I don't know a word in English, I find a similar English word that I know

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

Category 3: When revising

17) I read the text to myself

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

18) I read what I have written only when I have finished the whole paper

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

19) When I have written my paper, I hand it without reading it

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

20) I make changes in vocabulary

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

21) I make changes in sentence structure

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

22) I make changes in the structure of the paragraph

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

23) I make changes in the content or ideas

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

24) I don't use my draft to adjust my final writing

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

25) I check if my paragraph matches the requirements

1= very true of me; 2=a little bit true of me, 3=don't know; 4=not really true of me; 5= very untrue of me

Adapted from Petrić & CzárI (2003, pp. 210-211)

Appendix E: Writing Apprehension Inventory

Below are a series of statements about writing. There are no right or wrong answers to these statements. Please indicate the degree to which each statement applies to you by circling whether you **(1) strongly agree, (2) agree, (3) are uncertain, (4) disagree, or (5) strongly disagree** with the statements. While some of these statements may seem repetitious, take your time and try to be as honest as possible.

Category 1: Anxiety about Writing in General

1) I avoid writing

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

2) I look forward to writing down my ideas

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

3) Taking a composition course (a writing course/lesson) is a very frightening experience

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

4) My mind seems to go blank (I cannot remember anything) when I start to work on a composition (paragraph)

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

5) Expressing ideas through writing seems to be a waste of time

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

6) I like to write my ideas down

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

7) I feel confident in my ability to clearly express my ideas in writing

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

8) I'm nervous about writing

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

9) I enjoy writing

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

10) I never seem to be able to clearly write down my ideas

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

11) Writing is a lot of fun

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

12) I expect to do poorly in composition/writing classes even before I enter them

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

13) I like seeing my thoughts on paper

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

14) I have a terrible time organising my ideas in a composition course

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

15) It's easy for me to write good compositions

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

16) I don't think I write as well as most other people

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

17) I'm no good at writing

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

18) People seem to enjoy what I write

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

Category 2: Anxiety about Teacher Evaluation of Writing

19) I have no fear of my writing being evaluated

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

20) I am afraid of writing paragraphs when I know they will be evaluated

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

21) Handing in a composition (paragraph) makes me feel good

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

22) When I hand in a composition I know I am going to do poorly

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

23) I don't like my composition to be evaluated

1= strongly agree, 2=agree, 3=uncertain, 4=disagree, 5=strongly disagree

Adapted from Daly and Miller (1975 a, p. 246)

Appendix F: Writing Task 1

Session 1

Time: 1 hour and 30 minutes

Topic: the benefits of learning a foreign language

Instructions: write a paragraph on this topic. It should include from five to eight sentences.

Steps to follow:

Step 1: write your first drafts in 45 minutes

Step 2: write your final draft in 45 minutes

Appendix G: Writing Task 2

Session 2

Time: 1 hour and 30 minutes

Topic: the benefits of reading

Steps to follow:

Instructions: write a paragraph on this topic. It should include from five to eight sentences.

Step 1: write your first drafts in 45 minutes

Step 2: write your final draft in 45 minutes

Appendix H: Writing Task 3

Session 3

Time: 1 hour and 30 minutes

Topic: the advantages of using games for language learning

Instructions: write a paragraph on this topic. It should include from five to eight sentences.

Steps to follow:

Step 1: write your first drafts in 45 minutes

Step 2: write your final draft in 45 minutes

Appendix I: Writing Task 4

Session 4

Time: 1 hour and 30 minutes

Topic: The relationship between motivation and being a good language learner

Instructions: write a paragraph on this topic. It should include from five to eight sentences.

Steps to follow:

Step 1: write your first drafts in 45 minutes

Step 2: write your final draft in 45 minutes

Appendix J: Writing Strategies Checklist

Writing Task

Topic:

Instructions: Please use this checklist to assess the process you used to write. You can use the second section to write goal statements that can help you improve your writing for the next writing task.

Section 1

Criteria	Yes	No
<u>Before Writing</u>		
• I read the instructions		
• I thought about what I know on the topic before I started writing		
• I made a list of ideas on the topic		
• I made an outline or a diagram to illustrate my ideas		
<u>While-writing</u>		
• I used my outline to write		
• I thought about the main idea and write it		
• I skipped words I didn't know and went back to them later		
• I substituted a word from another language I know		
• I stopped after sentences to read them again and to check if they are well organised		
• I made changes in my outline to obtain more ideas		

<u>After writing</u>		
• I checked to see if the writing met my purpose		
• I re-read my paragraph to see if it made sense		
• I added information		
• I took out information		
• I checked for transitional expressions		
• I corrected for spelling, punctuation, capitals, and grammar		

Section 2

My goal for the next writing task is to:

- a.
- b.
- c.
- d.
- e.

(Adapted from O'Malley & Pierce, 1997)

Appendix K: Sample of Goal-setting Statements

Sample 1

Section 2

My goal for the next writing task is to:

- a. To not write directly and to use a plan.
- b. write and look for the main idea.
- c.
- d. look for and write supporting ideas in the draft.
- e.
- f. make a reading of what I write.
- g.
- h. try to find out mistakes.

Sample 2

Section 2

My goal for the next writing task is to:

- a. preview the paragraph, look for mistakes.
- b. look for the main idea, take a note, try to
- c. know the supporting sentences.
- d. make a plan.
- e. To read, look for all mistakes when
- f. finish, pay attention to the outline.
- g.
- h.

Sample 3

Section 2

My goal for the next writing task is to:

- a. Look for the supporting ideas for the topic and try to ~~about~~
- b. think about what I already know about them.
- c. take notes of the ideas I know.....
- d. stop writing and re-reading information.
- e. choose other words and to add some information.
- f.
- g.
- h.

Sample 4

Section 2

My goal for the next writing task is to:

- a. My goal for the next time is to take notes
- b. of the main information.....
- c. My goal for next time is to read what I write
- d. or merely thinking about it.....
- e. My goal for the next time is to modify my
- f. paragraph not just only writing ideas.....
- g. My goal for next time is to make outlines
- h. about what I want to write.....

Appendix L: Checklist of Paragraph Writing

Writing Task

Topic:

Instructions: Please use this checklist to assess your own paragraph (final draft).

Content	Criteria	Yes	No
	The paragraph addresses the assigned topic		
	I used appropriate ideas to write about the topic		
Organisation	The topic sentence states the main idea		
	The supporting sentences develop or are related to the topic sentence		
	The supporting sentences are related to each other		
	The supporting sentences include explanations and examples		
	The concluding sentence summarises or restates the topic sentence		
	I used transitional expressions appropriately to make relationship between sentences		

Grammar and vocabulary	I used prepositions correctly		
	I used articles correctly		
	I used verb forms correctly		
	I used correct subject-verb agreement		
	I used tense correctly		
	I used correct sentence structure		

	I used appropriate words		
	I used some new vocabulary		
	I used synonyms		
Style & Quality of Expression	I used formal words and expressions		
	I avoided contractions (e.g. it's, don't...etc)		
	I expressed my ideas precisely		
	I used precise words		
Mechanics/Punctuation & Spelling	I used needed capitals		
	I indented my paragraph		
	I respected the margins		
	I spelled words correctly		
	I used neat punctuation		

(Adapted from O'Malley & Pierce, 1997)

Appendix M: Scoring Grid for Paragraph Writing

Scales	Criteria	Score
Content/ Development of ideas	Paragraph addresses the assigned topic, uses appropriate supporting ideas to support the topic sentence; ideas are developed	2
	Paragraph addresses the topic but misses some points; ideas could be more fully developed	1.5
	Ideas incomplete, insufficient detail to support an idea	1
	Development of ideas not complete; paragraph is somewhat off topic	0.5
	Completely inadequate, doesn't consider the topic	0
Organisation	Effective topic sentence; supporting ideas connected to the main idea; supporting sentences and examples given; concluding sentence relates to the topic sentence; transitional expressions used	2
	Adequate topic and concluding sentences; development of the topic sentence is acceptable but some supporting ideas may be lacking, some ideas are not fully developed; Sequence is logical but transitional expressions may be absent or misused	1.5
	Mediocre or scant topic and concluding sentences; the ideas not fully supported by examples; problem of organisation	1

	minimally recognisable topic sentence; organisation can barely be seen; lack of supporting ideas; concluding sentence weak or illogical	0.5
	Absence of topic or concluding sentences; no apparent organisation of supporting ideas; severe lack of supporting ideas	0
Vocabulary and Quality of Expression	Precise expressions and vocabulary usage; formal writing	2
	Good expressions and vocabulary usage; formal	1.5
	Some vocabulary misused; lacks awareness of formal writing	1
	Poor expression of ideas; problems in vocabulary	0.5
	Inappropriate use of vocabulary; no concept of formal writing	0
Language Use	Correct use of relative clauses, prepositions, modals, articles, verb forms, and tense sequencing; no fragments or run-on sentences	2
	Some grammar problems don't influence communication, although the reader is aware of them; no fragments or run-on sentences	1.5
	Ideas are getting through the reader but grammar problems are apparent and have a negative effect on communication; run-on or fragments present	1
	Numerous serious grammar problems interfere with communication of the writer's ideas; difficult to read sentences	0.5

	Severe grammar problems interfere greatly with the message; reader can't understand what the writer was trying to say	0
Mechanics/ Punctuation and Spelling	Correctness of English written conventions: left and right margins; all needed capitals; paragraph indented; punctuation and spelling neat.	2
	Some problems with writing conventions or punctuation; occasional spelling errors; left margin correct; paper is neat and legible	1.5
	Uses general writing conventions but has errors; spelling problems distract reader; punctuation errors interfere with ideas	1
	Serious problems with format of paper; parts of paragraph not legible; errors in sentence punctuation and final punctuation	0.5
	Complete disregard for English writing conventions; paper illegible; obvious capitals missing; no margins; severe spelling problems	0

A paper is scored zero if it contains no answer or is written in a foreign language.

Adapted from: www.mesacc.edu

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Appendix N: Interview on Writing Strategies

Before writing stage

1. How did you start your writing?
2. What did you do to gather and organise ideas before writing?

While-writing stage

3. What techniques did you use while you were writing the paragraph?
4. What revisions did you make?

Post-writing stage

5. What did you do when you finished writing the paragraph?
6. How did you proofread your paragraph?

Appendix O: Interview on Writing Attitudes

Attitudes towards academic writing in English

1. Do you like writing in English at university? Why, or why not?
2. What do you think about English writing at university?
3. What do you like about writing paragraphs? How do you see it?

Attitudes towards one's writing ability

4. What do you think about your own English writing?
5. Do you think you are a good writer in English? Why, or why not?
6. Do you have difficulties when writing paragraphs in English? If so, what are they?

Adapted from Abdellatif (2012)

Appendix P: Sample of Paragraphs Scored Average

Pre-test

The technology plays an important role in our life, in all the domains music, movies, culture and it has an equal role in language learning and studying.

It helps us in researching, getting informations about our projects.

You can find any synonyms, antonyms, definition or translation of any word in all the languages, less time, less effort and more work and informations without moving or going to a far library to find a book.

Complete courses and it also ameliorates your level and your vocabulary.

Finally, technology has become very interesting especially in the recent years and no one can live without it.

Post-test

There are a lot of benefits in learning a foreign language at a young age. First, we all know that at that young age we are more likely to assimilate and remember informations. In a second part, people that age can deal with a lot more than we could imagine because they gain a cultural learning process other than their's so as they grow old, it'll be a good thing for their study or relationship with new people from that same culture. To conclude, foreign languages could be learn at an old age but it is better at a younger age. For a better assimilation.

Appendix Q: Sample of Paragraphs Scored Below Average

Pre-test

Nowadays, technology become very important in our daily lives. We use it for everything, especially in our studies. I'm not saying that the old way of learning, which is ~~bad~~ studying ^{only} with books and all, isn't effective, it's just saying that technology is way faster and can provide us lots and lots of informations. If you want to learn a new language, there's plenty of applications such as downloading, if you want to read books but don't have the money to buy them, then just upload them on your phone for free. And the most important part is that technology helps us to communicate with all the people around the world, and it's perfect if you want to learn a language or to speak it fluently. In addition to that, movies and series can help a lot with that, ~~to understand technology~~. After all that, we can see that technology isn't only bad as some people say. Don't get me wrong, it is bad if you use it a lot, but if it's for ~~the~~ ^{the} sake of studying and learning more and much quicker everyday, then it's more than ~~fine~~ ^{fine}.

Post-test

what we mean by the relationship between the age and language learning? This is our topic we're going to deal with. This relation is the study of constant link between different age categories. And the ability and inability of learning faster. So children learn faster than adults? as an answer we not necessary. There is many possibilities. There is possibility of adult can learn and can keep it in mind.

Appendix R: Sample of Paragraphs Scored Above Average

Pre-test: Sample 1

Technology and learning languages

Because of technology, learning languages become more common. First of all, we can use different web sites to reach the information we need just by googling it, for example web sites of different verb tenses.

In second place, Applications of learning languages which contains a lot of different exercises, and application to speak with natives, and translating.

In third place, the easy access to different documentary and movies in their original voices with subtitles.

To conclude, Technology made for people an easy access for learning languages.

Pre-test: Sample 2

Technology is a revolutionary invention, and the major key to success for language learners. First of all, every student from all around the world can learn and have an easy access to native speakers thanks to mobile devices, computers and internet. Second, it helps collaborative learning which is through chat platforms, and groups on social media. Another point, students can be more involved in the class and participate by preparing his lessons and making researchs on the net to conclude. Studies have shown that students using the technology succeed more.

Pre-test: Sample 3

Technology

Technology has made an extra changing in the world, especially in language learning. First, many students or people learned a new language just by using the Internet. For example, you want to learn Spanish you can read an article or speak written in this language or following a foreign website. Second, there are another options that allow you to learn more about the languages such as the various mobile applications: Facebook, YouTube, Gmail, etc. they gives the opportunity to meet a native speakers who help you to enrich your vocabulary and you will developed your skills. Third, to sum up, learning a new languages became possible and easier thanks to technology.

Post-test

Age : Advantages of early language learning

Learning a second language beside the mother tongue at an early age has a lot of benefits. First, it broadens the knowledge and widens the general culture of the learner by discovering the origin and roots of the language. Then, due to the phonological ability to produce sounds easily at a young age, the learner will speak the thought words very fluently, sounding like a native speaker. Furthermore, the process of learning a foreign language from the age of 2 until 9 years old stimulates the brain with a good memory and better intellectual capacities. Also, mastering more than two languages boosts the self-esteem and confidence. To conclude, the learning procedure of foreign languages has a good impact on its learner.

دراسة أثر استخدام نماذج التقييم الذاتي في تطوير مهارات التعبير الكتابي الأكاديمي
لطلاب السنة الأولى إنجليزية لغة أجنبية بالجزائر

هدف الدراسة الرئيسي تمثل في تطوير مهارات الكتابة في اللغة الإنجليزية كلغة أجنبية لدى طلاب السنة الأولى باستخدام نماذج التقييم الذاتي. اختيرت عينة الدراسة من مجتمع طلاب السنة الأولى قسم لغة إنجليزية، جامعة أبو القاسم سعد الله الجزائر 2. العينة ممثلة بعدد من طلاب السنة الأولى في قسم اللغة الإنجليزية كمجموعة تجريبية وكان عددهم 60 طالب وطالبة. وقدمت الدراسة أدوات بحث هي اختبارات تجريبية لقياس مهارة الكتابة واستراتيجيات الكتابة، ومقياس اضطراب التعبير الكتابي قبل وبعد التجربة إضافة إلى مقابلة حول استراتيجيات الكتابة ومقابلة حول ردود الفعل اتجاه التعبير الكتابي. تم إخضاع البيانات للتحليل الإحصائي واللغوي، ولقد كانت أهم نتائج الدراسة هو وجود دلائل تشير إلى تحسينات في مهارات واستراتيجيات الكتابة بعد استعمال نماذج التقييم الذاتي إضافة إلى ردود فعل ايجابية اتجاه التعبير الكتابي.

الكلمات المفتاحية: التقييم الذاتي، استراتيجيات الكتابة، مهارات الكتابة، اضطراب التعبير الكتابي، لغة إنجليزية لغة أجنبية