

SELF-REGULATED LEARNING IN CONTEXT; INTERPLAY OF COGNITION,
MOTIVATION, AND AFFECT IN THE COMPOSING PROCESS

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ABSTRACT

LEIGH ANNA HUTCHISON: Self-Regulated Learning in Context; Interplay of Cognition, Motivation, and Affect in the Composing Process
(Under the direction of Jeffrey A. Greene)

Many adolescent students in the United States struggle with the writing process, while frequently failing to implement strategies that are designed to aid in effective composing. Educational researchers have questioned why this may occur, because even struggling writers who have a conceptual understanding of strategies often fail to exert the effort required to use those strategies effectively. Researchers have recently begun to examine the interactions among cognition, motivation and affect that may influence students' ability to successfully self-monitor and self-regulate their use of strategies as well as motivational processes. Although some researchers have examined specific aspects of motivation in writing, very few have investigated the reciprocal interactions among cognitive, motivational and affective factors in the self-regulated composing process. In order to address this gap in research, I have chosen to incorporate a recent model, the Metacognitive and Affective Model of Self-Regulated Learning (MASRL) developed by Efklides (2009, 2011), which has described the integrated interaction among cognitive, motivational and affective processes within self-regulated learning. This study is currently the first in which the MASRL model (Efklides, 2011) has been applied to the composing process in order to examine composing as a series of self-regulatory events, unique to the individual writer, that requires the simultaneous self-regulation of cognitive, motivational and affective processes.

This study is a descriptive case-study, using multiple cases and triangulation of data sources to investigate the dynamic, recursive composing process in terms of self-regulatory events occurring in real time, for adolescent students at varying levels of ability. The study design targeted struggling writers in addition to competent writers, to determine the ways in which self-regulatory skills and affective processes interact with, and influence the onset and maintenance of motivation. Findings from this study revealed unique self-regulatory profiles for each of the nine participants; demonstrating interactive relations among self-efficacy beliefs, interest, feelings of difficulty, writing apprehension, and levels of effort and persistence throughout the composing process. The results provide a rich foundation of evidence to support an integrated model of composing that unfolds as a series of self-regulatory events in which specific cognitive, affective, and motivational factors unique to the individual writer interact at each self-regulatory phase, guided by the proactive agency of the writer. An analysis of each individual profile, in conjunction with cross-case trends, indicated that all students experienced feelings of difficulty during the composing task, either while initiating writing, or at transition points during composing, or both; prompting them to implement new strategies, adjust or change strategies, exert additional effort, or attempt to increase levels of interest in response to the challenges encountered while composing. Findings from the study also illuminated particular challenges faced by students at all levels of ability, and illustrated the role of feelings of difficulty in relation to self-efficacy and interest; with an emphasis on the role of feelings of difficulty (Efklides, 2009; 2011) as an important catalyst in self-regulated composing, which prompts the implementation of strategy use and increased effort.

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CHAPTER I

INTRODUCTION

A major challenge for the United States education system consists of finding effective ways to meet the critical academic and motivational needs of all students (Cho, Cho & Hacker, 2010; Tomlinson et al., 2003), as classroom settings have become increasingly diversified through the inclusion of students with a wide range of special needs (Graham, Harris & Mason, 2005; Klassen, 2002; Robinson, Zigler & Gallagher, 2000; Tomlinson et al., 2003; Troia, 2006). For instance, students with learning disabilities, giftedness, and emotional challenges are frequently included with non-native speakers of English, and with typical students in single-grade classroom settings (Baum, 2004; Lawrence-Brown, 2004; Nielson & Higgins, 2005; Simeonsson, Carlson, Huntington, McMillen & Brent, 2001; Tomlinson et al., 2003; Troia, 2006). The requirement of simultaneously meeting the individual differences in learning needs of a wide variety of students continues to pose challenges for teachers as well as for researchers in the field of education (Coleman, 2005; Gallagher & Gallagher, 2013; Klassen, 2002; Tomlinson et al., 2003). The challenges associated with meeting a wide range of student needs can seem overwhelming to teachers in each of the academic domains (Santangelo & Tomlinson, 2012), and especially in the area of literacy (Cho et al., 2010) where struggling writers are frequently found in populations of typical and even advanced students (Harris, Graham & Mason, 2003; Troia, 2006). For instance, how can the extreme range of cognitive and emotional needs of students from those on the autism spectrum, who may lack skills in expressive language

and display low levels of effort in composing, to those of students with literacy skills significantly above grade level who may display high levels of interest in writing, be met within the traditional classroom setting?

The broad range of cognitive needs and distinct motivational and emotional needs have been found to affect students at all ability levels (Byrnes & Wasik, 2009; Klassen, 2002; Linnenbrink, 2004; 2007; Linnenbrink & Pintrich, 2003; Nielson & Higgins, 2005; Pajares & Valiante, 2006; Troia, 2006; Troia, Shankland & Wolbers, 2012; Zimmerman & Schunk, 2008). For instance, students with specific learning disabilities, as well as struggling students, frequently experience heightened levels of anxiety in classroom settings as a result of repeated experiences of academic failure, which can have a negative impact on their self-perceptions of competence in performing academic tasks (Klassen, 2002; Pajares & Valiante, 2006; Schunk, 2003). This is evident in the area of literacy across all levels of ability, as students who experience high levels of anxiety related to writing, or writing apprehension (Daly & Miller, 1979), compared to those with low levels of anxiety, have reported more instances of negative experiences and failure with writing (Wachholz & Ethridge, 1996) and have been found to exhibit negative attitudes, behaviors and poor performance on writing tasks (Hassan, 2001). Previous experiences of success or failure in writing have also been found to be one of the most frequently cited sources of students' self-efficacy beliefs related to composing (Wachholz & Ethridge, 1996).

One particular motivational construct, self-efficacy beliefs, or people's judgments of their ability to "learn or perform behaviors at designated levels" (Schunk, 2003, p. 159) has been repeatedly demonstrated to markedly influence performance on a wide range of academic tasks (Hidi & Boscolo, 2006; Linnenbrink & Pintrich, 2003; Pajares, 2008; Pajares & Johnson, 1996;

Schunk, 2001; 2003; Schunk & Zimmerman, 2007), and is especially critical in the composing process (Pajares & Valiante, 2006). For instance, students who have low self-efficacy beliefs frequently feel anxious when faced with academic tasks that they feel are unattainable (Pajares & Valiante, 2006). Researchers have also found that writing apprehension is negatively related to self-efficacy beliefs (Pajares & Johnson, 1996). As students work through tasks, self-efficacy beliefs may be heightened by increases in levels of interest in the task (Hidi & Ainley, 2008) or they may be negatively influenced by the emotional and physiological reactions that students experience if they feel anxiety as they try to work through tasks (Klassen, 2002; Pajares & Valiante, 2006). As a result, students with low self-efficacy beliefs may often fail to exert the amount of effort needed to succeed, thus reinforcing their belief that they are not capable of performing effectively (Schunk & Zimmerman, 2007). This type of maladaptive motivational and behavioral pattern can result in lowered levels of self-efficacy beliefs and consistent lack of effort and persistence (Pajares & Valinate, 2006; Schunk, 2003), resulting in a negative achievement cycle that is difficult to change (Seeratan, 2001). Unfortunately, struggling students who are caught in a negative cycle of academic failure are not necessarily easy to identify (Nielsen & Higgins, 2005).

Other factors may also contribute to students' maladaptive motivational profiles and poor performance on academic tasks, such as composing. Some of these students may be at risk as a result of deficits in self-regulatory skills, while others may have deficits in language processing, and still others may have exceptional talents or strengths in combination with specific learning disabilities, or emotional challenges (Baum, 1994; Coleman, 2005; Nielsen & Higgins, 2005). Students who have experienced an uneven development of effective academic skills, such as strengths in conceptual processing but deficits in basic skills such as writing, often have unique

learning profiles that may result in emotional turmoil or negative affective experiences, especially for students at risk (Baum, 2004; Nielsen & Higgins, 2005).

Moving Beyond Individual Differences in Cognition

Within the last decade, the conception of individual differences in learning has expanded to include both cognitive and affective differences, in contrast to the previous emphasis on cognitive differences alone (Linnenbrink, 2004). It is now recognized that each student has a unique set of social, emotional, and academic needs that interact within the learning environment in multiple ways (Coleman, 2005; Klassen, 2001; Linnenbrink, 2004; Linnenbrink & Pintrich, 2003; Tomlinson et al., 2003). In order to meet the instructional challenges posed by such variation among students it has become essential to individualize education, with the aim of successfully fostering students' unique strengths while simultaneously offering cognitive and motivational strategies to remediate weaknesses for students who struggle to develop effective learning skills (Coleman, 1992, 2005; Levine, 2002; Tomlinson et al., 2003; Wolters, 2003; Snow, 1986).

In the area of literacy these issues are especially critical, as researchers have demonstrated that the development of effective skills in both reading and writing require complex learning processes that vary markedly as a result of individual differences at both cognitive and motivational levels (Hidi, Berndorff & Ainley, 2002; Klassen, 2002; Pajares, 2003; Zimmerman, 2002; Zimmerman & Risemberg, 1997). These individual differences make it challenging to provide effective classroom literacy instruction (Wakely, Hooper, de Kruif & Swartz, 2006). Students at low levels of writing ability may struggle with many aspects of the composing process, though even students at high ability levels frequently struggle to maintain motivation during challenging composing tasks (Hidi & Boscolo, 2006; Troia, 2006).

Composing is challenging because it is a self-regulatory process, a process that must be initiated, self-monitored and controlled by the writer, which requires the simultaneous execution of numerous highly complex skills (Harris, Graham & Mason, 2003; Zimmerman & Risemberg, 1997). Enacting these skills requires heightened levels of both cognitive and motivational engagement (Harris et al., 2003; Meece & Miller, 2001; Pajares & Valiante, 2006; Zimmerman & Risemberg, 1997). Although a variety of interventions have been developed to incorporate strategy instruction or metacognitive strategies to target specific deficits in students' writing skills (Graham & Harris, 1997; Graham, Harris & Mason, 2005; Wong, Butler, Fiezere & Kuperis, 1997), they are not always effective, especially when students have metacognitive deficits or maladaptive motivational patterns underlying their writing problems (Troia, 2006, 2012).

Currently researchers are beginning to better understand that students' unique set of social, emotional, and academic characteristics interact with academic skills within the learning environment in multiple ways (Coleman, 2005; Harris, Graham & Mason, 2006; Klassen, 2002; Pajares & Valiante, 2006; Pintrich, 2000; Wolters, 2003), and affect students' ability to utilize cognitive strategies effectively. In light of current theories that emphasize the motivational and affective factors that influence learning (Hidi & Ainley, 2008; Hidi & Boscolo, 2006; Linnenbrink & Pintrich, 2003; Pajares, 2008; Zimmerman & Schunk, 2008), it is becoming increasingly clear that cognitive strategy interventions alone are not sufficient, especially as related to the composing process. Researchers have now begun to recognize that motivational and affective factors influence whether an individual decides to use specific strategies, how strategies are enacted, and how persistently students enact those strategies (Efklides, 2009; 2011; Graham, Harris & Mason, 2005; Linnenbrink & Pintrich, 2003; Winne & Hadwin, 2008;

Zimmerman & Schunk, 2008). This high degree of variation in student motivation levels and academic skills poses difficulties for teachers when working with individual students, and it also creates a complicating factor in developing effective group oriented literacy instruction in classroom settings (Berninger & Hooper, 2006; Harris et al., 2003; Hooper, Wakely, de Kruif & Swartz, 2006; Troia, 2006).

Self-Regulated Learning and Writing

Research in the area of self-regulated learning (SRL; Pintrich, 2000; Winne & Hadwin, 2008; Zimmerman & Schunk, 2008) offers potential solutions to the instructional challenges posed by students at varied levels of ability who also have distinctive motivational and emotional needs. The study of SRL offers insights into the dynamic ways in which individuals are able to effectively monitor and regulate their own learning processes through the use of cognitive and metacognitive strategies, as well as through self-control of motivational and affective processes (Ainley & Patrick, 2006; Boekaert, 1995; Efklides, 2008; Graham, Harris & Mason, 2005; Patrick & Middleton, 2002; Schunk & Zimmerman, 2007; Wolters, 2003; Zimmerman, 2008). SRL is generally defined as an active process, during which learners set specific goals and then attempt to monitor and control aspects of their cognitive, behavioral, emotional and motivational processes in order to achieve specific learning goals (Pintrich, 2000). Although SRL has been widely recognized as being critical to effective learning, it is also understood to be a highly complex process that is composed of many factors and is manifested in different types of learning situations (Boekaerts, 1995; Efklides, 2008; Patrick & Middleton, 2002; Pintrich, 2000; Winne & Perry, 2000). In addition, the process of SRL has also been found to be a critical factor in both the onset and maintenance of motivation for individuals at all ability levels; ranging from

low performing students with learning disabilities, to extremely high levels of performance characteristic of expert adults (Cleary & Zimmerman, 2004; Corno & Mandinach, 1983).

Although the field of self-regulated learning is diverse, encompassing various theoretical perspectives, in recent years there has been a marked perspective shift away from a primary focus on the cognitive and metacognitive processes in learning, and toward an emphasis on the interaction of cognitive, motivational, and most recently, the affective processes that influence SRL (Efklides, 2009; 2011; Hidi & Ainley, 2008; Linnenbrink & Pintrich, 2003; Pajares, 2008; Zimmerman & Schunk, 2008). Recent research in the area of SRL is also being applied effectively to the process of composing, which is defined as a highly integrated self-regulatory process that requires the simultaneous orchestration of complex cognitive and metacognitive skills in combination with the regulation of the writer's actions, behaviors, and feelings in order to achieve self-set literary goals (Boekaertz & Rosendaal, 2007; Kaplan, Lichtinger & Gorodetsky, 2009; Pajares & Valiante, 2006; Schunk & Zimmerman, 2007; Zimmerman & Risemberg, 1997).

Previous research in SRL has revealed important insights into the complex self-regulatory process of composing. For instance, numerous researchers have revealed the importance of metacognitive monitoring as a key component of the self-regulated writing process (Cho, Cho & Hacker, 2010; Hayes, 1996; Graham, Harris & Mason, 2005; Zimmerman & Risemberg, 1997). One example is a classic theory of writing by Hayes and Flower (1980), based on Information Processing Theory (IPT), in which the central role of metacognitive monitoring in planning, translating ideas into text, and revising text is emphasized. Hayes and Flower (1980) stressed the importance of the writer's long-term memory in interaction with

cognitive and metacognitive self-regulatory processes such as organizing information, goal setting, and self-monitoring throughout each phase of the writing process (Hayes, 1996).

The process of metacognition, or thinking about one's thinking processes, is often understood in the composing literature in terms of specific metacognitive strategies used by writers to self-monitor and evaluate their own thinking and writing processes (de Kruif, 2000; Graham & Harris, 1997; Hacker, Keener & Kircher, 2009). Accordingly, many theories of self-regulated writing, including information processing, constructivist, and social cognitive theories, illustrate the importance of metacognitive strategies, such as self-monitoring (deKruif, 2000; Graham, Harris, & Mason, 2005; Zimmerman & Risemberg, 1997). Clearly, metacognitive knowledge is a key to the writing process (de Kruif, 2000; Graham et al., 2005; Zimmerman & Risemberg, 1997).

Social cognitive theorists also recognize the key role of metacognitive monitoring throughout the three-phase process of self-regulated writing; which includes a forethought or planning phase, a self-monitoring and control or performance phase, and a self-reflection phase (Zimmerman & Risemberg, 1997). Within each self-regulatory stage of the composing process, the metacognitive strategies of self-monitoring and control are key elements. Self-monitoring and control are critical to all aspects of composing, as the writer moves through the three stages: planning, performance, and revision (Graham & Harris, 1997; 2005; Troia, 2006; Zimmerman & Risemberg, 1997).

Although these major theories have made important contributions to the understanding of self-regulated writing, there are important differences between social cognitive theory and information processing theories, and the ways in which each have informed research in writing, that will be examined in this review. For instance, the IPT perspective primarily emphasizes the

cognitive aspects of metacognitive monitoring, with a focus on the specific cognitive and metacognitive strategies employed by the writer at different stages in the writing task. The social cognitive perspective, on the other hand, places additional emphasis on the motivational and affective factors that can impact the writer's goals and the quality of the self-monitoring and control processes (de Kruif, 2000; Graham & Harris, 1997; Graham, Harris & Mason, 2005; Hidi & Boscolo, 2006; Zimmerman & Risemberg, 1997). The critical roles of social, motivational, behavioral and affective processes that occur simultaneously throughout the writing process, and are emphasized in social cognitive models but are often underemphasized in information processing models, are now recognized to have a major influence on the cognitive aspects of self-regulated writing (Boekaerts, 1995; Hidi & Boscolo, 2006; Schunk & Zimmerman, 2007; Zimmerman & Risemberg, 1997). The proactive agency of the writer, or the writer's ability to mobilize resources and enact specific choices such as the use of cognitive, as well as motivational strategies and effort to attain goals (Paris, Byrnes & Paris, 2001), is also being recognized in recent research as the essential catalyst in effective composing that guides the self-regulatory process (Hacker, Keener & Kircher, 2009; Zimmerman & Risemberg, 1997).

A number of studies have been conducted since the early 1980s to examine the specific cognitive components of the writing process and to isolate certain cognitive and metacognitive strategies that affect the production of text (de Kruif, 2000; Hacker, Keener & Kircher, 2009; Harris, Graham & Mason, 2003; Hayes, 2006). Examples include metacognitive language strategies requiring self-monitoring skills in organization and planning that have been used to develop skills in self-regulation for students with learning disabilities in writing (Singer & Bashir, 1999), and self-monitoring strategies that have targeted ineffective skills in self-evaluation (Miller, 1991). More recently, effective writing interventions have been developed

using metacognitive strategies that emphasize the skills of organization and self-monitoring at the stages of planning and revising, respectively (Wakely, Hooper, de Kruif & Swartz, 2006). Explicit instruction in self-regulated writing strategies as developed in the Self-Regulated Strategy Development (SRSD) intervention by Graham and Harris (2005) has been effective in targeting specific cognitive writing deficits for students with learning disabilities (Graham, Harris & Mason, 2005). Questioning techniques have also been used effectively in general literacy instruction to help students participate in effective metacognitive thinking strategies, as well as to provide effective feedback on students' progress (Fitzgerald & Graves, 2004).

However, although these studies have highlighted the use of effective cognitive writing strategies, very few research studies have been developed to examine *how* writers first become aware of the need to use cognitive strategies; to adapt strategies in order to enhance the production of text; or how writers attempt to regulate levels of effort while engaged in the composing process (Graham et al., 2005; Hacker et al., 2009; Hayes, 2006; Hidi & Boscolo, 2006; Zimmerman & Risemberg, 1997).

Additionally, very few studies have examined the writing process as a process of “applied metacognition” (Hacker, Keener & Kircher, 2009, p. 154), meaning a process in which the text produced is seen as the result of the writer's own continuous “goal-directed monitoring of their cognitive and affective states” (p. 155), essentially reflecting the “unique phenomenology” (p. 156) or the unique cognitive, affective and motivational processes, of the individual writer. The model of writing by Hacker et al. (2009) incorporated the key element of the information processing perspective, metacognitive monitoring, within a framework that is similar to the social cognitive perspective in that it focused attention on writing as a *continuously* changing process in which the writer is an active agent; creating meaning, adjusting strategies, and

reacting to emotional, motivational and behavioral changes that occur throughout the writing process (Hidi & Boscolo, 2006). However, although in their writing model Hacker et al., (2009) stressed the importance of metacognitive monitoring and control in regulating motivation, they did not fully elaborate the reciprocal interactions among cognitive, motivational and affective processes. In the current study I will attempt to address this gap by integrating aspects of a new model of SRL, the Metacognitive and Affective model of Self-Regulated Learning (MASRL; Efklides, 2009; 2011), to illustrate the relationships among affect, cognition, and motivation in self-regulated learning, and then explore these reciprocal interactions in the self-regulated composing process.

Efklides' Model of SRL

The recent model of self-regulated learning, MASRL, developed by Efklides (2009; 2011) builds on social cognitive theory and offers new insights into the ways in which cognitive, motivational and affective factors interact. Efklides' model (2009) emphasizes self-regulated learning (SRL) as a cyclic process fueled by personal feedback, and stresses the critical role of a feedback loop as essential to metacognitive monitoring in self-regulated learning (SRL). However, unlike the social cognitive model, which emphasizes the importance of conscious, cognitive feedback processes, Efklides' model includes an affective feedback loop that taps nonconscious affective responses that occur in simultaneous interaction with cognitive feedback. Efklides (2009) has conceptualized the role of *metacognitive experiences*, the awareness or feelings experienced when initially approaching and processing information related to a learning task, as the link between cognitive, affective and motivational aspects of SRL. For instance, metacognitive experiences can take the form of both cognitive elements, such as task specific knowledge or metacognitive judgments, as well as affective elements, which include specific

metacognitive feelings: feeling of knowing, feeling of familiarity, feeling of confidence and feeling of difficulty (Efklides, 2009).

In this study, I examined one of the roles of metacognitive experiences, operationalized as *feelings of difficulty* (Efklides, 2009; 2011; Efklides & Vlachopoulos, 2012) applied for the first time in the context of composing, with the expectation that it may serve to illuminate the interactions among affective, cognitive and motivational factors that occur continuously throughout the composing process. For instance, *feeling of difficulty* can indicate a sense of lack of fluency in processing that triggers analytical processes (Efklides, 2011) that, in the case of composing, may help the writer recognize a possible failure in meaning making; thus prompting a change of strategies or revision of text in order to better reflect the writer's intended meaning. Feeling of difficulty may also trigger estimates of additional effort that is needed; an issue that is critical to the composing process, because even expert writers frequently face challenges during composing, requiring heightened levels of effort (Hidi & Boscolo, 2006; Troia, 2006; Zimmerman & Risemberg, 1997).

Measuring SRL During Composing

Expert composing requires the ability to effectively self-monitor and self-regulate cognitive, affective, motivational and behavioral factors at every moment throughout each stage of the composing process (Hacker, Keener & Kircher, 2009; Schunk, 2003; Zimmerman & Risemberg, 1997). The self-regulated composing process is a highly dynamic, individualized process that unfolds in a unique and multi-faceted way for each composing task (Hacker, et al., 2009).; =It therefore readily lends itself to being characterized as a series of events occurring at different points in time, that are contextually embedded (Ainley & Patrick, 2006; Patrick & Middleton, 2002).

This perspective requires methods that measure the process of self-regulation as an event, rather than as an aptitude, although it has been found to have properties of both (Winne & Perry, 2000). When described as a static aptitude, or an enduring personal attribute that is relatively domain general and predicts future behavior, measurements of self-regulated learning may be used to predict whether or not a student will act on a specific cognitive task, such as utilizing a specific study tactic (Winne & Perry, 2000). However, aptitude measures of SRL have been found to vary within individuals across different tasks, and over prolonged periods of time, as well as across individuals and across domains (Winne & Perry, 2000). As a result, researchers in the field have raised questions regarding the accuracy of aptitude measures when they are used to tap self-regulated learning and motivation as an integrated, dynamic process (Boekaerts, 1995; Patrick & Middleton, 2002; Zimmerman, 2008).

In contrast, when described and measured as an *event*, SRL is described as a dynamic process that must be captured as it occurs and as it changes over the course of a learning task. When SRL is described as an event, it involves the regulation of multiple processes, cognitive, motivational, emotional and behavioral, which are under the influence of the individual learner (Zimmerman, 1995). Developing a study that examines the composing process from the perspective of a series of unfolding self-regulatory *events* allows for an exploration of the specific roles students' motivational beliefs, such as levels of self-efficacy, interest, effort, and persistence, as well as feelings of difficulty, play in self-regulated writing especially as writers make decisions at different phases of the composing process regarding choice and adjustment of strategies, and whether or not they will sustain effort to overcome feelings of difficulty in order to achieve their writing goals. It is also important to understand how these SRL processes and motivational variables differ among students, because research indicates that the use of self-

regulated learning processes and the choice of effective strategies is a distinguishing characteristic between students of high versus low ability (Corno & Mandinach, 1983; Troia, 2006). An integrated design that incorporates aspects of Information Processing theory (Winne & Hadwin, 2008), Social Cognitive theory (Zimmerman & Risemberg, 1997; Zimmerman & Schunk, 2008) and the recent MASRL model (Efklides, 2009; 2011) of SRL allows an examination of the ways in which cognitive, motivational and affective factors interact at various phases of the composing process for students at varying levels of ability, by investigating composing as a series of self-regulatory events requiring a continuous process of metacognitive monitoring, control and adaptation.

Overview of the Current Study

In this study, I have given a detailed description and illustration of the ways in which motivational, cognitive and affective elements interact as writers self-monitor and make control decisions regarding the initiation or adjustment of strategies and regulation of motivation, affect and effort, when facing challenges and experiencing difficulty throughout the composing process. Specifically, by including the affective variable *feeling of difficulty*, which is understood to trigger control processes (Efklides, 2011), findings from this study shed light on the essential question of *how* writers initially become aware of the need to initiate, adjust or change strategies and regulate levels of effort and affect while engaged in the process of composing; information that is not elaborated in current models (Graham, Harris & Mason, 2005; Hayes, 2006; Hacker, Keener & Kircher, 2009; Pintrich, 2000; Zimmerman & Risemberg, 1997).

In addition, this study is one of very few (Hacker, Keener & Kircher, 2009; Cho, Cho & Hacker, 2012) in which research is focused on examining the composing process as a series of

self-regulatory events requiring a process of applied metacognition that reflects the unique phenomenology of the writer (Hacker, et al., 2009), a perspective that offers important insights and comparisons into distinct self-regulatory challenges faced by students at different levels of ability. For instance, information gleaned from this study sheds light on how a writer's awareness of feelings of difficulty coupled with lowered self-efficacy beliefs and heightened effort exertion (Efklides, 2011) informs choice of strategies and the decision to proceed with or abandon a composing task. From this perspective, it is important to examine the self-regulated writing process in terms of a series of events, or a transient state that is embedded in a longer series of states that continue to unfold over time (Winne & Perry, 2000). When described as an event, or a dynamic process, self-regulated learning is understood to involve more than metacognitive knowledge or metacognitive strategies; it is instead seen as a process involving a "sense of personal agency to regulate other sources of personal influence, such as emotional processes, as well as behavioral and social environmental sources of influence" (Zimmerman, 1995).

Purpose of the Study

The purpose of this study was to examine the composing process as a series of self-regulatory events requiring moment by moment metacognitive monitoring, control, and adaptation, in order to gain a deeper understanding of the ways in which cognitive, affective and motivational factors interact at different phases of the composing process as writers initiate, sustain, adjust, and react to the complex process of composing. This study was designed to offer a detailed investigation and analysis of the reciprocal interactions of motivational, cognitive and affective factors as writers self-monitor and make control decisions regarding initiation or adjustment of strategies, and regulation of effort when facing challenges and experiencing

difficulty in the composing process. A specific measure of affect, *feeling of difficulty* (Efklides, 1999; 2008; 2011; Efklides & Vlachopoulos, 2012), was incorporated into this study to tap students' on-line metacognitive experiences of difficulty, that indicate lack of fluency in processing, in order to investigate the important question of *how* writers initially become aware of the need to initiate, adjust or change strategies as well as *how* writers effectively monitor and regulate effort and affect while engaged in the composing process. In this study I have made an important contribution to the literature by examining the role of *feelings of difficulty* (Efklides, 2009; 2011; 2012) in the context of composing, in order to explore the relationships among affective, cognitive and motivational factors that occur in interaction throughout the composing process.

Research Questions

Specific research questions posed by this study include the following:

1. How does a writer become aware of the need to utilize specific strategies at different phases of the composing process?
 - 1.a) What strategies do writers use at different phases of the composing process?
 - 1.b) How do writers' *feelings of difficulty* relate to choice and adjustment of strategies at different phases of the composing process?
2. In what ways do writers' *feelings of difficulty* relate to their ability to effectively monitor and self-regulate the composing process at each of the three self-regulatory phases: forethought, performance and self-reflection?
 - 2.a). How is this demonstrated by students at different levels of ability?
 - 2.b) How is this demonstrated by students with heightened levels of writing apprehension?

3. How do writers' self-efficacy beliefs, in combination with their levels of interest, relate to their levels of effort and persistence at different phases of the composing process?
 - 3.a) How are these relations demonstrated by students at different levels of ability?
 - 3.b) How are these relations demonstrated by students with heightened levels of writing apprehension?
4. How do writers' *feelings of difficulty* relate to their self-efficacy beliefs and levels of interest, at different phases in the composing process?
 - 4.a) How are these relations demonstrated by students at different levels of ability?
 - 4.b) How are these relations demonstrated by students with heightened levels of writing apprehension?
5. How do writers' *feelings of difficulty* relate to their levels of effort and persistence at different phases of the composing process?
 - 5.a) How are these relations demonstrated by students at different levels of ability?
 - 5.b) How are these relations demonstrated by students with heightened levels of writing apprehension?

CHAPTER II

REVIEW OF THE LITERATURE

The process of self-regulated learning is complex, and over time theorists in the field have developed diverse conceptualizations of the self-regulated learning (SRL) process resulting in distinct, yet overlapping models and measurement tools (Pintrich, 2000). Diverse theoretical perspectives continue to shape the study of self-regulated learning in academic contexts. However, in recent years an important perspective shift in the field has occurred, which has broadened the focus from the study of cognitive processes in isolation to an investigation of the relationships between cognitive and motivational processes that are essential to effective learning (Boekaerts, 2002; Efklides, 2009; Linnenbrink, 2004; Linnenbrink & Pintrich, 2003; Meece & Miller, 2001; Pajares, 2003; Winne & Hadwin, 2008; Zimmerman & Risemberg, 1997; Zimmerman & Schunk, 2008).

Within the last decade, aspects of this perspective shift have become evident in certain prominent theories of self-regulated learning, such as Information Processing and Social Cognitive theories, where researchers have begun to examine interactions between the motivational and cognitive factors in SRL (Greene, Moos & Azevedo, 2008; Pintrich, 2000; Winne & Hadwin, 2008; Zimmerman & Schunk, 2008), which have also informed research related to the process of composing (Graham, 2006; Hacker, Keener & Kircher, 2009; Hayes, 1996). Additionally, in recent research, specific models of SRL have explicitly emphasized the critical role of affective factors (Efklides, 2008; 2009; Linnenbrink, 2004; Pintrich, 2003; Winne & Hadwin, 2008; Zimmerman & Schunk, 2008). In this review, I will offer a brief overview of

two predominant theories in SRL that have informed research in the writing process in order to clarify their contributions to an understanding of composing as a self-regulated process, as well as to highlight gaps in the research that will be addressed by examining a more recent, integrated perspective. The role of motivational and affective processes as important integrated factors will then be explored and discussed in relation to the self-regulated process of composing, in which affective factors play an integral role (Pajares & Valiante, 2006; Zimmerman & Risemberg, 1997).

Overview of Self-Regulated Learning

Self-regulated learning has long been recognized as having a critical influence on the quality of students' learning and achievement, because it requires students' active participation in their own learning processes through self-regulatory effort (Patrick & Middleton, 2002). Although critical to effective learning, SRL is a highly complex process, with numerous and diverse components that challenge researchers' abilities to capture its integrated nature within a single model (Boekaerts, 2002; Patrick & Middleton, 2002; Pintrich, 2000; Winne, 2001; Zimmerman, 2000). For instance, different theories of SRL have been postulated since the 1970s, representing foci as diverse as the reasons why people engage in SRL, what goals people seek to attain, or how people enact successful learning strategies (Lens & Vansteenkiste, 2008). Early researchers tended to focus primarily on the impact of distinctly separate self-regulatory processes such as goal setting, self-instruction, or strategy use; emphasizing cognitive processes in the effective enactment of strategic learning (Boekaerts, 2002; Corno & Mandinach, 1983; Winne & Hadwin, 1998; Zimmerman & Schunk, 2008), a perspective that strongly influenced early theoretical models of composing (Graham & Harris, 1997; Graham, 2006; Hayes, 1996). Currently however, researchers in the field of SRL are striving to understand the process of SRL

as a dynamic, cyclical process that integrates cognitive, motivational and affective processes through the proactive involvement of the learner (Efklides, 2008; 2009; 2011; Pintrich, 2000; Winne & Hadwin, 2008, Zimmerman & Schunk, 2008).

Pintrich (2000) defined SRL as “an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment” (p. 453). This comprehensive definition of SRL emphasizes the active, constructive process through which learners create their own goals, strategies, and meaning by drawing on information from their own mind, or internal environment, as well as from the external environment. It also assumes that there is some specific type of standard, criterion, or goal used to gauge level of progress, with which the learner can monitor, regulate or control environmental features in addition to aspects of his or her own motivation, behavior, and cognition (Pintrich, 2000).

Pintrich’s (2000) definition of self-regulated learning is closely related to the self-regulated process of composing, which requires the actively integrated and sustained orchestration of cognitive, affective, motivational and behavioral factors; defined as the process of “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). Two distinct theories of SRL that have informed recent research into the self-regulated writing process include information processing theories and social cognitive theories, both of which emphasize the key role of metacognitive monitoring in the self-regulated learning process. Each of these theoretical models of SRL will be examined in

order to determine the degree to which they effectively illustrate the interactive roles of cognition, motivation and affect as they relate to the composing process.

Information Processing Perspective of Metacognitive Monitoring and Control

Researchers in information processing theory (IPT) have emphasized the central role of metacognitive monitoring, or the self-monitoring of one's thinking processes, as well as the importance of cognitive strategies in SRL (Winne, 2001). IPT focuses on the way information is processed and interpreted, the type of information processing that occurs, and the form in which information is represented in memory (Winne, 2001). Information processing theorists acknowledge that new information is processed using primarily two basic types of knowledge: *declarative knowledge*, the knowledge of factual information, or *procedural knowledge*, the knowledge of how to do something; both of which can be considered aspects of metacognitive knowledge (Winne, 2001). From the IPT perspective, SRL is conceptualized in terms of four distinct and recursive phases that include the processes of defining a learning task based on task conditions and the cognitive conditions of the learner; formulating goals and plans for learning; enacting study tactics or strategies to achieve self-set goals; and adapting metacognition as needed, to address any aspect of processing involved in the previous phases (Greene & Azevedo, 2007; Winne, 2001; Winne & Hadwin, 2008). Central to this model is the idea that cognitive strategies and processes result in products that are compared against standards, resulting in cognitive evaluations that are used by the learner in the critical processes of metacognitive monitoring and metacognitive control (Greene & Azevedo, 2007; Winne, 2001; Winne & Hadwin, 1998; 2008).

Metacognitive monitoring is believed by information processing theorists to be the key, or pivot upon which self-regulated learning turns, because it is understood to be a cognitive

process that generates continuous evaluations through the ongoing comparison of current learning progress to the specific goals and standards set for a learning task; a process critical to guiding and regulating learning (Greene & Azevedo, 2007; Winne, 2001; Winne & Hadwin, 2008). For example, monitoring occurs when two chunks of information are compared, revealing how well the features of target information compare against standards, or goals, resulting in evaluations about discrepancies between the current profile of work in progress toward a goal, and the specific standards for the final product. This process can result in shifts in attention, creating opportunities to change the use of tactics or specific strategies in order to regulate and gain control over the learning process (Winne, 2001). As a consequence, metacognitive monitoring ultimately results in metacognitive control, the ability to control or guide the self-regulatory process toward a satisfactory outcome, and is equated with agency in information processing theories, as it is dependent on decisions made by the learner (Winne, 2001).

Metacognitive monitoring in composing, an IPT perspective. Metacognition is also central to the writing process. For instance, as related to writing, it includes knowledge about oneself as a writer, and one's knowledge of the writing process. It also includes knowledge about the purpose and requirements of the specific writing task, as well as knowledge of how, when, and where to use specific writing strategies to produce a certain type of product. Throughout the process of self-regulating writing therefore, an individual's self-monitored level of progress toward his or her goal determines the amount of effort needed in order to make adjustments between previously set standards and ongoing progress until the composing task is completed (de Kruif, 2000; Graham & Harris, 1997; Zimmerman & Risemberg, 1997). Interventions based on information processing models frequently focus on helping learners to

expand their metacognitive knowledge base in order to improve their strategy use. These types of writing interventions are therefore typically oriented toward explicit, direct strategy instruction, which frequently emphasizes certain types of knowledge such as declarative knowledge based on the writing genre and the specific writing task; procedural knowledge of how to use cognitive and behavioral strategies during the process of composing; and conditional knowledge, which helps students in deciding when, or at what specific point in the composing process, a specific strategy may be used effectively (de Kruif, 2000; Graham & Harris, 1997).

Skill in metacognitive monitoring and use of metacognitive strategies enables students to recognize their areas of strength and weakness in learning, and to monitor and regulate the learning process. The active use of metacognitive skills is a strong indicator of cognitive engagement in learning (Linnenbrink & Pintrich, 2003), and many researchers in the field of composing have emphasized the importance of cognitive and metacognitive strategies in the writing process (Graham, Schwartz, & MacArthur, 1993; Hayes, 1996; Harris, Graham & Mason, 2006; Troia, 2006; 2007). Specifically, the use of organizational techniques and elaboration strategies can result in deeper levels of information processing that are important in the composing process. Metacognitive skills such as these have demonstrated positive results when incorporated into specific writing interventions that emphasize self-regulatory abilities such as planning and organizing text production (Hooper, Wakely, de Kruif & Swartz, 2006).

Metacognitive monitoring has also been recognized for many years as being critical to the process of composing as the writer moves through the stages of planning, generating and organizing ideas, setting goals and generating text, and finally revising and editing the text produced to meet self-set standards and goals for communication (Hayes, 1996; Hacker, Keener & Kircher, 2009). Traditionally, models of writing based on IPT have emphasized the

importance of an individual's metacognitive knowledge of the writing process, which includes knowledge about oneself as a writer, as well as general knowledge of the many skills required for effective writing. Metacognitive knowledge also includes the writer's knowledge about the purpose and requirements of a specific writing task, as well as knowledge of how, when, and where to use specific writing strategies to produce a certain type of product (Page-Voth & Graham, 1999). Adaptive and evaluative processes based on monitoring ability have also been identified as important in models of composing that emphasize the problem solving nature of the writing task, in which decision making is an essential aspect of effective performance. Many composing tasks cannot be completed effectively unless writers are able to make "gap-filling" (p. 21) decisions while creating first drafts, and evaluative decisions during the process of revising; processes that often pose challenges to a writer (Hayes, 1996).

The recent model of writing developed by Hacker, Keener and Kircher (2009) emphasizes that the purpose of writing is the production of thought, and the goal of the writer is to produce text that reflects the writer's intended meaning. This theory of writing goes beyond an examination of specific cognitive or metacognitive components to focus emphasis on the role of the monitor, or the individual writer, who must constantly guide, control and coordinate the components of writing. Hacker et al. (2009) have conceptualized writing as "primarily applied metacognition in which the production of text is the production of meaning that results from a person's goal-directed monitoring and control of their cognitive and affective states" (p. 170). In trying to examine writing from this perspective, the researchers have emphasized the importance of investigating the writing process in as close proximity as possible to the writer's on-line thinking processes; as choices made at each moment during composing hinge upon whether or not the writer's intended meaning is being produced (Hacker et al., 2009). Although the authors

attempt to integrate numerous aspects of diverse writing theories into their new conception of writing, their model continues to build upon an information processing emphasis on the essential role of metacognition as key to the writing process, and it does not explain how motivation and affect may influence the writer's goals. The model by Hacker et al. (2009) indicates that continuous monitoring and control of writing proceeds without interruption until the writer becomes aware of a breakdown in meaning, at which point the writer must exert control in adjusting the process i.e., by reviewing the text, rewriting to enhance meaning, or generating new ideas until the breakdown is resolved (Hacker et al., 2009). The writer's intended meaning is understood to be based upon the writer's goals, which may change as the task progresses, so the focus of metacognitive monitoring and control may also change frequently throughout the composing process. In addition, the authors have found that processing time and levels of cognitive effort also fluctuate throughout the writing process (Hacker et al., 2009). In this model, as with previous models, cognitive and metacognitive processes are emphasized; however specific affective and motivational processes have not been elaborated.

The model by Hacker, Keener, and Kircher (2009) was developed with a primary focus on the continuously changing process of writing, which is controlled and guided in accordance with the writer's goals; in contrast to many models of writing that were developed with a focus on cognitive and metacognitive writing strategies for use in interventions. For instance, recent writing interventions have been designed for use in the general classroom using metacognitive strategies that emphasize the skills of organization and self-monitoring at the stages of planning and revising specifically. Findings indicate that explicit writing instruction focused on improving planning capabilities has improved the quality and organization of students' compositions, as well as increasing the length of written products (Hooper et al., 2006; Wakely

et al. 2006). Questioning techniques can also be used effectively in general literacy instruction to help students engage in effective metacognitive thinking strategies, as well as to provide effective feedback on students' progress (Fitzgerald & Graves, 2004). The process of questioning during writing tasks encourages students to actively think about, and react to the text they are producing. Questions can also be phrased to help students monitor their own thinking processes (Fitzgerald & Graves, 2004).

Earlier research by Wong and colleagues (1997) had indicated that strategy instruction also improved the writing of students with learning disabilities in the targeted areas of clarity, organization and aptness of ideas. Graham, Schwartz and MacArthur (1993) indicated that students with learning disabilities often have deficits in declarative, procedural or conditional knowledge of composing in addition to inaccurate estimates of their writing competency. Harris and Graham (2006), using a study designed to examine the effectiveness of their self-regulated strategy development (SRSD) model, a writing strategy instructional model designed to impact elementary students' strategy knowledge, strategic behavior and motivation in writing, found significant increases in students' knowledge of writing and in their ability to effectively plan and complete a composing task. However, in this study SRSD was found to have no effect on motivational variables such as self-efficacy beliefs or levels of effort (Harris, Graham & Mason, 2006) even though previous studies with older students had shown slight increases in self-efficacy and persistence (Graham, Harris & Troia, 2000).

Researchers have however, found differences in academic motivation, self-beliefs, and achievement as a function of gender differences (Pajares & Valiante, 2001). In their study examining gender differences in writing motivation, Pajares and Valiante (2001) demonstrated that although gender differences in academic abilities have been found to be negligible, gender

differences in motivational factors such as value of writing, self-efficacy for writing, self-efficacy for self-regulation and goal orientation toward writing have been found to be significantly higher for girls. However, the authors did not find significant differences between girls and boys for levels of writing apprehension. Pajares and Valiante (2001) also indicated that many of the gender differences in motivation that have been found for middle school students may be a result of gender orientation rather than gender 'per se'; with a feminine orientation resulting in more adaptive motivational beliefs and behaviors toward writing (Pajares & Valiante, 2001).

A recent study by Lee (2013), which examined data from the National Association of Educational Progress (NAEP) writing assessments for eighth grades students in 1998 (n = 20,586) and 2007 (n = 139, 900), found that girls scored substantially higher than boys in writing, although both boys and girls reported similar levels of learned behaviors toward writing and writing attitudes. Additionally, the author found that even girls who demonstrated the most negative attitudes toward writing scored higher on performance indicators than boys with the most positive attitudes. Interestingly however, writing apprehension was found to be common for both boys and girls, with heightened levels of stress and anxiety toward writing experienced by even highly competent writers (Lee, 2013). When examined across countries, literacy skills among girls are consistently higher than among boys, however findings regarding differences in writing self-beliefs have been varied, with some studies indicating no differences (Lee, 2013) and others indicating stronger writing self-beliefs for girls (Pajares, Hartley & Valiante, 2001). However, even when both boys and girls have demonstrated positive self-beliefs about writing, scores on writing tasks are consistently higher for girls, with some reports of 15-25 point differences (Lee, 2013).

Such a high degree of individual variation in terms of skills, motivation, and strategy use in the writing process reflects the conception of writing as a problem solving process; a conception which originated as early as the late 1970s, when researchers such as Hayes and Flower (1980) used a process of concurrent verbalizations, or *think aloud* methodology, to investigate writing (Breuleux, 1991). The think-aloud methodology, which has been an accepted research strategy for analyzing problem solving processes for decades, requires writers to verbalize their thoughts in an ongoing manner as they work through a writing task (Breuleux, 1991). Information processing theorists understood that as individuals work through a problem the intermediate steps in the problem solving process come into the focus of attention in a sequential manner, and are thus available for verbalization (Breuleux, 1991; Fox, Ericsson & Best, 2011; Hayes, 2012; Yangus & Lado, 2012). In terms of a problem solving process, the production of discourse has been described as the “generation (or retrieval) of a conceptual, abstract, network of information that must then be expressed” (Breuleux, 1991, p. 343) and transformed into a linear text. Prominent researchers in the field of writing continue to advocate for think-aloud methodology as an important means of gaining further insight into writing processes (Berninger & Hayes, 2012; Breuleux, 1991; Hayes, 2012; Yangus & Lado, 2012) for both adults and younger students. A recent study by Berninger and Hayes (2012) examined longitudinal data, from within case studies of twenty students in first through fifth grades, on writing tasks in which a think-aloud protocol was used successfully during different stages of the writing process; such as brainstorming, planning, organizing and oral revising, in order to gain insight into the development of children’s writing skills.

Think aloud methodology continues to be used successfully to investigate the writing process, although critics question the potential for reactivity; meaning that the process of

concurrent verbalizations may possibly either have a positive effect, in improving task performance, or a negative effect, resulting in deteriorated performance (Yangus & Lado, 2012). However, information processing theorists, who have used think-aloud protocols to examine the problem solving process, have emphasized that the steps in a problem solving process come into the focus of attention in a sequential manner in such a way that they are available for verbalization without interfering with the problem solving process itself (Breuleux, 1991; Fox, Ericsson & Best, 2011).

Conflicting evidence about the reactivity of think-aloud protocols prompted a meta-analysis by Bowles (2008), who concluded that the issue of reactivity was dependent upon the type of verbalization and the type of task being performed (Yangus & Lado, 2012). Researchers have found that concurrent verbalizations of thoughts *per se* generally do not result in reactivity in writing tasks (Breuleux, 1991; Hayes, 2012; Yangus & Lado, 2012), however verbalizations of explanations or justifications can result in reactivity (Fox, Ericsson & Best, 2011; Yangus & Lado, 2012). Think aloud protocols have been used extensively in writing research since Hayes and Flower (1980) developed models of composition with adult writers, to current research investigating the cognitive writing processes of young children (Berninger & Hayes, 2012) and second language acquisition and writing skills of adolescent learners (Tillema, van den Bergh, Rijlaarsdam & Sanders (2011); Yangus & Lado, 2012).

Although some researchers believe that the use of think aloud protocols may help writers to notice their own strengths and weaknesses, which may lead to better self-correction and monitoring, most results have supported the claims of Ericsson and Simon (1993) that verbalizations that require participants to explain their thoughts have a much higher potential for reactivity, and verbalizations of thoughts *per se* result in negligible levels of reactivity (Yangus

& Lado, 2012). An additional meta-analysis conducted by Fox, Ericsson and Best (2011) offered support for think aloud protocols as a legitimate method of examining the thoughts of participants during challenging tasks. The authors determined that think aloud, or concurrent, verbalizations resulted in little or no difference in performance when compared with that of silent conditions (Fox, Ericsson & Best, 2011). In the case of writing, think aloud protocols allow for an examination of writing as a recursive, problem solving process that taps cognitive as well as motivational processes; as Hayes (2012) has emphasized that in order to adequately account for how people write, researchers must combine motivational processes with cognitive processes in modeling writing.

Graham (2006), in addition to a number of other researchers, has stressed the need for further research on motivational factors that impact self-regulated writing (Harris, Graham & Mason, 2006; Hidi & Boscolo, 2006; Troia, 2006). Although many of the components of the writing process, and effective strategies used for composing, have been delineated in theories of writing based on information processing theories, historically information processing theories have given little attention to the motivational or affective factors that impact the composing process. Nor have these models fully described *how* the component processes including motivation are coordinated under the direction of a monitor, nor the mechanisms by which writers make decisions to change or alter aspects of the composing process (Hacker, Keener & Kircher, 2009; Hidi & Boscolo, 2006).

SRL as a Recursive Process, an Information Processing Perspective

Although the actual decision making process that occurs throughout different stages of SRL is not yet fully understood, it is implied in information processing models as students make adjustments or adaptations to their processing through changes in choice of strategies, increases

in effort, or evaluation and revision of their work (Winne, 2001). In this way, the metacognitive feedback generated at each phase of SRL can trigger resulting metacognitive control, as students make decisions to adapt or adjust their choice of strategies to create different approaches to completing tasks (Winne, 2001). SRL is therefore understood to be recursive, rather than linearly structured; as the products created within different phases can be used as information inputs for other stages of processing, which can occur in two ways: by either being fed back into the same phase during which monitoring occurred, or by being fed into either previous or subsequent phases (Winne, 2001). This recursive monitoring process is understood to function similarly to a thermostat, in that the learner sets a specific standard against which subsequent learning outcomes will be measured, or evaluated (Winne & Hadwin, 1998; Zimmerman & Cleary, 2009). If the feedback indicates that the performance outcome is inadequate to meet the standard set, attention and control shifts in order to self-correct performance; a process that continues until effective self-correction is achieved (Winne & Hadwin, 1998). The IPT perspective on the recursive nature of SRL originally emphasized cognitive processes, but it has been recently expanded in an attempt to include motivational processes (Greene, Moos & Azevedo, 2008; Winne & Hadwin, 2008).

The role of affect; an information processing perspective. Researchers who focus on information processing models of SRL have only recently attempted to clarify the role of affective and motivational processes in interaction with cognitive processes as they occur within the four phase model of SRL developed by Winne and Hadwin (2008). Winne and Hadwin (2008) recently acknowledged that affect is an integral aspect of the initial phase of task perception, as a learner's personalized profile of a learning task will inherently include the affective responses that the learner experiences when approaching the task. Other researchers

have recently identified this initial stage of task perception as a stage that includes affective responses to a learning task, as well as additional motivational information, such as beliefs of competence, that can influence the learner's motivational state (Efklides, 2009; Pintrich, 2000; Winne & Hadwin, 2008). Although Winne and Hadwin do not include in-depth definitions of different forms of affect, they do identify anxiety as an example of affect within their model by indicating that students' initial perception of a learning task may include "feelings of anxiety about the ability to complete it" (Winne & Hadwin, 2008, p. 299). Though this model has not been applied specifically to the composing process, studies have indicated that anxiety for writing, also termed writing apprehension, can be a factor that causes writers to avoid a task, or to exert minimal effort (Graham, 2006; Troia, 2007).

In the model by Winne and Hadwin (2008), the effects of affect are also illustrated in relation to the other phases of SRL. For instance, the goal setting and planning processes of phase two may be influenced by a student's feelings and perceptions of anxiety in the first phase as he or she initially perceives the task, because goals are understood to always result from task perceptions. In this example, a student whose initial perception of a learning task involves feelings of anxiety may set the goal of lowering his or her anxiety level, and then attempt to regulate it by proceeding to enact strategies to attain that goal (Winne & Hadwin, 2008; Wolters, 2003). However, currently there are few studies that focus on *whether* and *how* students become aware of their emotional responses to learning tasks, and subsequently make appropriate choices of options to regulate levels of emotion and motivation (Wolters, 2003).

The role of affect in composing; an IPT perspective. Although Hayes' seminal model of the composing process was revised to include motivational and affective factors as characteristics of the individual writer, hypothesized to interact with the cognitive processes of

text interpretation, text production and reflection, Hayes (1996) did not indicate or elaborate on how motivation and affect were thought to actually interact with cognitive processes. Some, more recent models of writing, such as Hayes' (1996; 2006) revised model have incorporated more specific aspects of motivation. However these have primarily been cognitively based, and generally limited to research on single motivational factors such as attitudes, writing apprehension, interest, self-efficacy beliefs, or attributions for success in writing, without clarifying the role of affective and cognitive processes in interaction (Graham, 2006; Hayes, 1996; 2006). Theories of composing based on IPT models have continued to emphasize the central role of metacognition and the importance of cognitive strategies in writing, with less emphasis on motivational or affective factors (Byrnes, 2008; de Kruif, 2000; Graham & Harris, 1997; Pajares, 2003; Zimmerman & Risemberg, 1997).

In the case of composing, anxiety experienced at the stage of task perception may cause the writer to shift attention away from the goals specific to composing and toward the goal of attempting to regulate levels of anxiety, thus diverting cognitive and motivational resources away from the task at hand, though more research is needed to determine how this process unfolds (Graham, 2006). Although Winne and Hadwin's model (2008) emphasizes the importance of regulating affective and motivational states, an important skill that has been recognized as critical to the process of effective composing (Graham, 2006), the model assumes that cognition precedes the affective and motivational processes that result in engagement in a task. A limitation of Winne and Hadwin's (2008) model is that the model does not effectively address the ways in which affective and motivational states may enhance initial motivational orientation toward a learning task (Efklides, 2011; 20132000), nor the ways in which affective

reactions may enhance the choices made, such as choice of strategies, throughout a complex task like composing (Hidi & Boscolo, 2006; Zimmerman & Risemberg, 1997).

A Social Cognitive Perspective on Metacognitive Monitoring and Control

In order to address some of the questions raised in response to IPT models of SRL regarding the interaction of cognition and affect, it is necessary to examine other theoretical models of SRL that have informed research on the writing process, such as Social Cognitive theory. Social Cognitive theory offers an inclusive definition of SRL as the degree to which students are “metacognitively, motivationally, and behaviorally active participants in their own learning process” (Zimmerman, 2008, p. 167). In this model, the thoughts, actions and feelings of the learner must be cyclically adapted toward satisfaction of personal learning goals for SRL to be effective (Zimmerman & Cleary, 2009). From this perspective, the core issue that taps the essence of the SRL process is whether or not a learner demonstrates proactive qualities such as initiative, persistence, perseverance, and adaptive skill; characteristics that are believed to stem from adaptive motivational beliefs and feelings, in addition to metacognitive knowledge and strategies (Zimmerman, 2000; 2008).

In contrast to information processing theories, that place primary emphasis on cognitive processes in SRL, an important issue that emerges from social cognitive perspectives concerns the integral role of the beliefs and motivational feelings of the learner in both initiating and sustaining adaptive changes made in the self-regulatory process (Zimmerman, 2008). The ability of the learner to initiate and sustain adaptive changes, the concept of *agency*, is integral to the Social Cognitive theory of self-regulation. As Bandura (1982) has stressed “self-regulatory capabilities require tools of personal agency and the self-assurance to use them effectively” (p. 129). Personal agency (Bandura 1977, 1982, 2001) is the process by which individuals take

responsibility for their specific actions through choices such as the mobilization of resources, including cognitive and motivational strategies as well as levels of effort, expended to attain goals (Paris, Byrnes & Paris, 2001; Pintrich, 2000).

Social cognitive theorists have developed three and four phase models of SRL that attempt to integrate cognitive and motivational processes by illustrating the ways in which metacognitive monitoring affects regulation of cognitive, behavioral and motivational processes (Pintrich, 2000; Zimmerman, 1995, 2000, 2008). Each of these models includes an initial *forethought phase*, a *performance, or monitoring and control phase*, and a final phase of *self-reflection*. In the initial *forethought phase*, motivational processes are believed to underlie, and be closely linked with cognitive processes (Zimmerman, 1995, 2000, 2008). For instance, Zimmerman (2000) has shown the *forethought phase* cognitive activities of task analysis, which includes goal setting and strategic planning, to be closely linked to the motivational beliefs that the learner may bring to the task, including: self-efficacy beliefs, outcome expectations, intrinsic interest or value, and goal orientation. As related to composing, some studies have, in fact, indicated that individual differences in motivation predict writing ability, and levels of interest among older students have been found to predict performance on composing tasks (Graham, 2006).

In the social cognitive models of SRL, the different phases of *forethought, performance* (or *monitoring and control*) and *self-reflection* illustrate the general sequence that a learner follows when performing a task. However, the phases are neither represented as being linearly structured nor simply recursive, and metacognitive monitoring is conceptualized in broader terms than a series of information processing events (Zimmerman, 1995). In social cognitive theories, metacognitive monitoring, control and reaction processes are understood to occur as reciprocal

and simultaneous processes enacted as the learner progresses through each phase of a task (Zimmerman & Cleary, 2009). Metacognitive monitoring from this perspective is defined as “a person’s mental tracking of specific aspects of their own performance, the conditions that surround it and the effects that it produces” (Zimmerman & Cleary, 2009, p. 249). This dynamic process allows the learner to change goals and plans, or update choice of strategies based on personal feedback from continuous monitoring, control and reaction processes (Pintrich, 2000; Zimmerman, 2000).

This perspective has also been applied to the composing process by Zimmerman and Risemberg (1997), who pointed out that information processing models, which originally identified cognitive self-regulatory strategies as integral in enabling writers to “acquire greater skill from their own writing efforts” (p. 76), tended to focus primarily on issues of writing competence rather than on the process of writing performance. Zimmerman and Risemberg (1997) argued that the self-regulated development of writing performance is a social cognitive process that requires more than cognitive skill and metacognitive knowledge of composing. Self-regulated writing requires focused time and effort on the part of the writer in addition to regulation of cognition and behavior, in order to initiate and sustain beneficial levels of affect and motivation that fuel the writing process, as the writer attempts to communicate his or her ideas effectively (Graham, 2006; Zimmerman & Risemberg, 1997).

Zimmerman (1995) emphasized that SRL requires more than metacognitive monitoring and skill, because even if a learner possesses metacognitive knowledge and strategic skill, it is difficult to use effectively if the learner is challenged by stress, fatigue, or compelling distractions; points that are also highly relevant to the self-regulated writing process (Zimmerman & Risemberg, 1997). From Zimmerman’s (1995) perspective, the critical feature

of SRL that plays a primary role is “the capability to mobilize, direct, and sustain one’s instructional efforts” (p. 217). In other words, the personal agency of the learner, which involves an underlying sense of competence as well as motivation to set self-regulated learning in motion, is the critical feature of SRL (Bandura, 2001; Pajares, 2008; Zimmerman, 1995) and also of self-regulated writing (Zimmerman & Risemberg, 1997).

Roles of agency, self-efficacy and interest in SRL; a social cognitive perspective.

From the perspective of social cognitive theory, self-regulation is the self-directive process that occurs to the degree that students can effectively use specific personal processes such as self-efficacy beliefs, to regulate their own cognitive, motivational and behavioral processes, in addition to their learning environment, during goal-directed tasks (Zimmerman & Kitsantas, 2002). Self-efficacy, a key concept in SRL that was originally recognized by Bandura (1982) as being critical for its ability to enable control over an individual’s feelings, thoughts, and actions (Pajares, 2003; Pajares & Valiante, 2002; 2006; Schunk & Zimmerman, 2007), is understood to be an essential aspect of social cognitive theory because it is integral to an individual’s sense of agency, which fuels motivation and engagement in learning (Pajares & Valiante, 2006; Schunk 2003). Students’ beliefs of personal competence, “the beliefs that students create, develop, and hold to be true of themselves” are, as Pajares has emphasized, “vital forces for success or failure” (Pajares & Valiante, 2006, p. 160), as they can enhance or diminish levels of engagement and persistence in learning tasks (Pajares, 2008). Self-efficacy is also a critical aspect of composing, for as writers develop skills in regulating aspects of their environment, their behaviors and their personal cognitive, affective, and motivational processes, their sense of self-efficacy is greatly enhanced and in turn fuels motivation to increase levels of effort in the face of challenges posed by the composing process (Zimmerman & Risemberg, 1997).

Studies have consistently demonstrated that self-efficacy beliefs are highly predictive of achievement outcomes related to specific subjects across academic domains (Pajares & Valiante, 2006; Schunk, 2003;), and may predict specific academic accomplishments better than either “previous attainments, knowledge or skills” (Pajares & Valiante, 2006, p. 162). Self-efficacy beliefs have also been demonstrated to influence students’ choice of learning tasks, levels of effort and persistence when faced with challenges, achievement outcomes, levels and types of goal-striving, and overall resilience (Niemivirta & Tapola, 2007; Schunk, 2003; Schunk & Pajares, 2002; Schunk & Zimmerman, 2007). Studies examining self-efficacy in different subject areas such as mathematics and writing have demonstrated that self-efficacy beliefs are also domain, or task specific and are highly predictive of performance (Klassen, 2002; Pajares & Valiante, 2006; Schunk & Pajares, 2002), as the “best predictors of behavior in specific situations are individuals’ self-perceptions within those situations” (Schunk, 1991, p. 212). High self-efficacy beliefs have also been demonstrated to be particularly important in the process of composing, because composing is a challenging task that demands competence in the multiple areas of spelling, grammar, vocabulary and organization; complex skills that must be executed simultaneously (Klassen, 2002; Pajares & Valiante, 2006).

Interactive model of Self-Efficacy; a Social Cognitive perspective. Research findings have demonstrated that self-efficacy beliefs also correlate with specific indexes of self-regulated learning, such as choice of learning strategies and use of cognitive strategies (Schunk & Pajares, 2002) as well as with levels of, and changes in interest (Niemivirta & Tapola, 2007). A current conceptual framework of self-efficacy developed by Linnenbrink and Pintrich (2003) illustrates the interactions among self-efficacy, self-regulated learning, and the psychological state of interest in the context of engagement in learning. In this model of self-efficacy, Linnenbrink and

Pintrich (2003) demonstrate that self-efficacy is integrated with behavioral, cognitive, and motivational engagement through interaction with specific components of each of these processes. For instance, this model of self-efficacy can be broken down into the three specific components of *behavioral engagement*, composed of effort, persistence, and instrumental help-seeking; *cognitive engagement*, consisting of strategy use and metacognition; and *motivational engagement*, determined by levels of interest, value and affect.

In this model, *behavioral engagement* can be measured in terms of three factors that include: the level of effort exerted by a student in order to complete a task, a student's ability to persist in the face of difficulties, and a student's ability to effectively seek help as needed. Behavioral engagement has been shown to be related positively to measures of self-efficacy in studies with both junior high and college students, in which students with strong self-efficacy beliefs consistently showed higher levels of effort and persistence in the face of difficulties than did those with lower measures of self-efficacy (Linnenbrink & Pintrich, 2003). The component of *cognitive engagement* is evident when students are thinking "deeply about the content to be learned" (Linnenbrink & Pintrich, 2003, p. 124), in other words, when they are distinguishing between the things that they know and do not know, and when they are actively using a variety of learning strategies in order to increase or enhance their understanding and their ability to "think critically and creatively about the material to be learned" (p. 124). These types of thought processes involve self-regulatory activity and metacognition, while simultaneously self-monitoring for comprehension; all of which are strong indicators of cognitive engagement. Numerous studies have consistently shown that self-efficacy beliefs are related to increased use of metacognitive strategies and deep processing strategies in students of different age, gender, and ethnic groups (Linnenbrink & Pintrich, 2003).

Additionally, *motivational engagement* can be broken down into the components of interest, value, and affect; all of which have also been shown to interact in a reciprocal way with self-efficacy beliefs. Although the causal link between these components and self-efficacy continues to be debated, studies have indicated that these factors do influence each other (Hidi & Ainley, 2008; Linnenbrink & Pintrich, 2003; Niemivirta & Tapola, 2007). For instance, the psychological state of interest has been demonstrated to enhance levels of attention, effort and persistence, as well as selection of learning strategies and progress toward goals; all of which also enhance self-efficacy beliefs (Hidi & Ainley, 2008; Hidi & Renninger, 2006). In addition, affect, or emotional response, is positively related to learning because positive emotions, like pride and joy in one's task, contribute to motivational engagement, while negative emotions relate negatively to engagement in learning (Linnenbrink & Pintrich, 2003).

The feedback loop in SRL; a social cognitive perspective. The distinctive perspective of social cognitive theory, which views SRL as an interaction among personal, behavioral and environmental factors, emphasizes the cyclic nature of the SRL process because feedback from prior performance in all areas is used by the learner continuously, to make adjustments to current SRL processing (Pintrich, 2000; Zimmerman, 1995; Zimmerman & Cleary, 2009). The concept of a feedback loop is central to SRL because it helps to explain how the learner adapts to changing conditions or processes as a result of personal feedback, or the information that results from the learner's own understanding or behavior, that can be related in a cyclic manner to subsequent actions or adaptations (Zimmerman & Cleary, 2009). These feedback cycles are necessary due to the constantly changing nature of learning and performance processes, which are influenced simultaneously by personal, behavioral and environmental factors (Zimmerman & Cleary, 2009). This type of feedback loop also illuminates important dynamics within the

composing process, in which the writer must constantly adapt, revise, and evaluate aspects of text during the process of text generation based on textual feedback (Hayes, 1996) as well as feedback from the writer's personal behavioral, affective and cognitive processes (Zimmerman & Risemberg, 1997).

This view contrasts with views of feedback loops that are limited to control decisions as found in IPT models that illustrate the feedback loop function like a thermostat where initial performance is tested against a set standard, and control shifts to self-correct only if feedback indicates that performance is inadequate (Zimmerman & Cleary, 2009). In contrast, the social cognitive view of the feedback loop is much more dynamic, with numerous sources of feedback possible from social (e.g., praise, guidance, or criticism), environmental (e.g., learning task, or physical outcomes) and personal (e.g., awareness of physiological or behavioral outcomes) sources (Zimmerman & Cleary, 2009). This is also highly relevant to the composing process, as physiological and affective reactions are understood to be highly influential throughout the composing process (Pajares, 2003). However, the specific ways in which writers become aware of their emotional responses, and able to effectively regulate these processes, has not been fully clarified (Graham, 2006).

From the social cognitive perspective therefore, in order to effectively self-regulate, the learner must observe and monitor each phase of the learning process through three self-oriented feedback loops; involving behavioral self-regulation (i.e., self-observation and strategic adjustment), environmental self-regulation (i.e., observing and adjusting environmental conditions), and covert self-regulation (i.e., monitoring and adjusting cognitive and affective states; Zimmerman & Cleary, 2009). These feedback loops are understood to be open, in contrast to closed feedback loops that describe self-regulation as a process of “reducing

performance discrepancies *reactively* against an unchanging standard” (Zimmerman, 2000, p. 16). Open feedback loops, in contrast, include the ability to *proactively* increase performance discrepancies by “raising goals and seeking more challenging tasks” (Zimmerman, 2000, p. 16). This concept is critical to effective composing, as writers must be able to create and generate ideas for compositions, flexibly adapt strategies, and revise and evaluate the text produced in order to meet their self-set goals for effective communication (Graham, 2006; Hacker, Keener & Kircher, 2009; Zimmerman & Risemberg, 1997).

Self-efficacy and metacognition related to composing. The conceptual framework developed by Linnenbrink and Pintrich (2003), which shows a reciprocally interactive relationship between self-efficacy and each of the distinct components of behavioral, cognitive, and motivational engagement in learning, also illustrates the interaction of self-regulated processes required for effective composing (Zimmerman & Risemberg, 1997). As related to composing, self-efficacy is described as the “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). Within the composing process, the reciprocal interaction between self-regulatory processes and self-efficacy beliefs is believed to be a dynamic process that sustains levels of engagement in writing. For instance, the relative importance of each of the three forms of engagement (i.e., cognitive, motivational and behavioral) described in the model by Linnenbrink and Pintrich (2003), can vary during a composing task due to changes in the environmental context, the result of behavioral changes, or the writer’s personal efforts to self-regulate the composing process (Zimmerman & Risemberg, 1997). In this way, the situated task of composing requires the simultaneous self-regulation of complex interactions among the writer’s personal goals for communication, knowledge,

emotions, and self-efficacy beliefs, as well as the writer's mental representations of the communicative situation (Boekaerts & Rozendall, 2007; Schunk & Zimmerman, 2007; Zimmerman & Risemberg, 1997).

A specific aspect of cognitive engagement illustrated in this model, metacognition, is also critically important in composing as it has been shown to enable the writer to monitor and control choice and use of strategies, as well as behavioral adaptations (Graham, 2006; Hacker, Keener & Kircher, 2009; Hayes 2006; Zimmerman & Risemberg, 1997). In a recent study by Hacker, Keener and Kircher (2009), the researchers have stressed that the writing process is “primarily a metacognitive process in which the production of text is the result of a person's goal-directed monitoring and control of their cognitive and affective states” (p. 155). Current models of composing however, have not yet fully elaborated on the ways in which writers are able to monitor and control affect in relation to cognition during the writing process (Graham, 2006; Hacker et al., 2009; Troia, 2006).

Metacognition in the form of metacognitive experiences, i.e. “what the person is aware of and what she or he feels when coming across a task and processing the information related to it” (Efklides, 2008, p. 279) such as *feelings of difficulty* or satisfaction, which have negative or positive affective characteristics respectively, may also play an important role in enabling the writer to remain aware of, and regulate levels of motivation, affect, and engagement (Wolters, 2003) throughout the composing task. The effective self-regulation of motivational and affective processes is essential to successful composing (Zimmerman & Risemberg, 1996). However, currently very few studies have examined the regulation of motivation and affect (Efklides, 2011; Graham, 2006; Pintrich, 2000; Wolters, 2003).

Throughout the composing process cognitive feedback occurs through a strategic feedback loop created by metacognitive monitoring, and is understood to have a marked impact on the writer's self-efficacy beliefs by altering self-perceptions of writing ability (Zimmerman & Risemberg, 1997). For instance, if strategic feedback indicates either an improvement in performance or superior performance on a writing task, the writer's self-efficacy beliefs will be enhanced, whereas the same beliefs may be diminished as a result of negative feedback or inferior output. Writers have thus been demonstrated to persist, or increase self-regulatory activity when the strategies they use increase their self-efficacy beliefs (Pajares, 2003; Schunk & Pajares, 2002; Schunk & Zimmerman, 2007), and in this way self-efficacy has been shown to be predictive of not only writers' self-regulatory processes, but also of their intrinsic motivation, which fuels engagement in the composing process.

Self-efficacy has also been demonstrated to interact with both interest and affect (i.e., emotional response). Researchers have demonstrated that self-efficacy and interest are positively related to learning because positive emotions, like pride and joy in one's task, contribute to motivational engagement, while negative emotions relate negatively to engagement in learning (Linnenbrink & Pintrich, 2003). The physiological arousal that results from somatic and emotional states is also understood to be one source of self-efficacy beliefs, as students gauge their sense of confidence in their abilities from the emotional and affective states they experience as they approach a learning task (Pajares & Valiante, 2006). This is particularly important to a task such as composing; as Pajares (2003) has emphasized that all phases of the composing process are influenced by affective components, including the positive emotions associated with interest (Hidi, Berndorff & Ainley, 2002). For instance, both initially engaging in, and

continuing to work on an activity such as composing, with heightened levels of interest, may also be an additional source from which self-efficacy beliefs develop (Hidi et al., 2002).

Motivational Theory of Interest

The general psychological state of interest, identified as a component of motivational engagement in Linnebrink and Pintrich's interactive model of self-efficacy (2003), has been recognized by numerous researchers as beneficial for its ability to enhance engagement in learning (Ainley, Hidi & Berndorff, 2002; Wolters, 2003). However, the recent motivational theory of interest, conceptualized by Hidi and Renninger (2006) to illustrate the different types of interest through a four-phase model of interest development (Hidi & Ainley, 2008; Hidi & Renninger, 2006), remains distinct from most other theories of motivation in its ability to effectively integrate cognitive and affective factors with the critical role that interest plays within the development of self-regulated learning. For instance, the motivational theory of interest defines interest-based motivation as a motivational state that results from either situational interest or individual interest. *Situational interest* is understood to be generated by aspects of the environment that focus attention, and is characterized by an affective reaction that may or may not last (Hidi & Ainley, 2008; Hidi & Renninger, 2006), while *individual interest*, is defined as an enduring predisposition to attend to objects and events and to re-engage in activities over time (Hidi & Ainley, 2008; Hidi & Renninger, 2006).

In this theory, the four-phase model of interest development (Hidi & Renninger, 2006) specifically illustrates the developmental progression of interest-based motivation as a self-regulatory process that results from either the primary phases of situational interest or individual interest (Hidi & Renninger, 2006; Hidi, Renninger & Krapp, 2004). As illustrated by the authors, the initial phase of interest, situational interest, is actually composed of two subtle stages

of interest development, characterized by differences in both cognitive and affective responses (Hidi & Renninger, 2006). For instance, initially, at the point of triggered situational interest, there is a marked attentional focus and affective reaction triggered by an environmental stimulus, which causes short-term changes in affective and cognitive processing. If this stage of interest persists, it can develop into a stage identified as maintained situational interest, in which attention remains focused, and persists over time. This stage is believed to be no longer exclusively externally supported, and can begin to become self-generated as interest persists (Hidi & Renninger, 2006; Hidi, Renninger & Krapp, 2004).

As interest continues to develop, the second stage of individual interest is an enduring predisposition to attend to objects and events, and to re-engage in activities over time. There are also two developmental stages of this type of interest, marked by the beginning stage of emerging individual interest and a later stage of well-developed individual interest. The point at which individual interest emerges is marked by the beginning of self-regulation; in which interest becomes self-generated with the production of curiosity questions related to content, and self-reflection is sparked as individuals begin to monitor their own understanding of the subject matter. A continuation of this process can result in a well-developed individual interest that is marked by increased knowledge, and valuing of the subject matter (Hidi, Renninger & Krapp, 2004). At this stage, interest for a task is often self-generated, with increases in self-regulated learning and self-reflection, as the individual continues to remain engaged in learning. From this theoretical perspective, interest is understood to be a construct that has both affective and cognitive components, and becomes a predisposition to re-engage with content over time. Each phase of interest is characterized by affect as well as some form of knowledge or cognitive

processing, and as such, it is recognized as having an important motivational component (Hidi et al., 2004; Hidi & Ainley, 2008; Hidi & Renninger, 2006).

Interest, Self-Efficacy and SRL in reciprocal relations. Three features of interest, which distinguish it from many other motivational variables, are actually similar in some respects to self-efficacy. For instance, first, interest is understood to be content or object specific, and is characterized by the processes of focused attention, engagement, or both; readying an individual for the possibility of action (Ainley, Hidi & Berndorff, 2002). This is similar in some ways to the construct of self-efficacy, in that self-efficacy is understood to be task specific, and high levels of self-efficacy beliefs enhance levels of behavioral, cognitive and motivational engagement in a task, while also increasing levels of effort and persistence (Linnenbrink & Pintrich, 2003; Pajares, 2008; Schunk, 2003). Interest is also recognized as a phenomenon that exists between a person and a specific content; it does not simply reside solely in either the person or the content (Hidi & Renninger, 2006). Similarly, though self-efficacy beliefs are personal beliefs held by individuals about their capabilities, they relate to a specific task, or to the most proximal stage of an ongoing learning task (Schunk, 1991; Schunk & Pajares, 2002).

The third distinctive feature of interest is its composition, which includes both cognitive and affective components as separate but interactive systems, with affect being a critical feature of the interest construct (Hidi & Ainley, 2008; Hidi & Renninger, 2006; Hidi, Renninger & Krapp, 2004). The affective component of interest typically describes the positive emotions, such as enjoyment, that accompany engagement in a learning task, while the cognitive component generally refers to the perceptions or cognitive representations related to engagement (Hidi & Renninger, 2006). Although the affective element associated with interest is often

positive, and highly energizing, interest also has implications for negative affective experiences, in that in order for interest to develop, the affective experience associated with it has to change from negative to positive (Hidi & Ainley, 2008; Hidi & Renninger, 2006). For instance, once the affect associated with interest is experienced as the activating emotion of enjoyment related to a learning task, the learner feels empowered with a sense of intrinsic value for the content as well as with a sense of being able to master the material (Pekrun, Goetz & Titz, 2002).

The influence of emotional processes related to interest also illuminates the way in which affect is related to self-efficacy. Self-efficacy, though it is understood to be primarily a cognitive construct, also has affective aspects, in that physiological response or somatic and emotional states (e.g., such as stress, anxiety, emotional arousal or mood) are understood to be one of four possible sources of self-efficacy beliefs (Pajares, 2008; Pajares & Valliante, 2006). For example, symptoms of sweating and increased heart rate, or strong negative emotions that generally signal anxiety, may be detrimental (Pekrun, Goetz & Titz, 2002) in that they may convey to a learner that he or she lacks the skills required to succeed at a specific task, and may thus result in lowered self-efficacy beliefs (Schunk, 2003). Frequently, students may also gauge their degree of confidence in being able to complete a task by the emotional state that they experience as they initially encounter a learning task, because strong emotional reactions can provide cues as to whether the learner might expect success or failure (Pajares & Valiante, 2006; Pekrun et al., 2002). These specific characteristics of interest and self-efficacy also allow both motivational factors to be closely aligned with theories of self-regulated learning that tap aspects of the cognitive, affective, and motivational processes (Hidi & Ainley, 2008; Linnenbrink & Pintrich, 2003; Pajares, 2008) that are integrated in engaged learning.

Empirical data from studies of self-efficacy and interest also indicate a close relationship between the developmental processes of these two motivational factors when viewed in reciprocal interaction within the dynamic process of self-regulated learning (Ainley, Buckley & Chan, 2009; Hidi & Ainley, 2008). For instance, the behavioral outcomes of both interest and heightened self-efficacy are described as effort, persistence, focused attention, and positive emotional reactions (Hidi & Ainley, 2008). The developmental process of interest has also been found to be partially dependent on the development of enhanced self-efficacy beliefs (Schunk & Pajares, 2002). Both self-efficacy and interest are also understood to follow a four phase progression in development that moves from primarily external sources toward more internalized forms of interest and self-efficacy that are self-regulated (Ainley et al., 2008; Hidi & Ainley, 2008). The reciprocal interactions between interest and self-efficacy have also been demonstrated to be highly important to the self-regulated composing process because heightened levels of interest and self-efficacy can result in focused attention, concentrated effort and better behavioral and emotional control; factors that are critical to effective composing (Hidi, Berndorff & Ainley, 2002; Zimmerman & Risemberg, 1997).

Self-regulation is an integral aspect of interest development, as affective and cognitive processes must be effectively coordinated for the state of interest to be maintained during the learning process (Hidi & Ainley, 2008). Similarly, an individual's ability to increase interest has also been identified as a very important aspect of self-regulated learning, because interest is shown to have a positive influence on attentional processes, selection of learning strategies, and overall progress toward achievement goals (Hidi & Ainley, 2008; Hidi & Renninger, 2006). These findings also indicate that individuals may act to regulate levels of motivation and affect during engagement in learning tasks when, for instance, they use strategies to increase their

levels of enjoyment, or the situational interest that they experience during a specific activity (Wolters, 2003). However, very few researchers to date have focused on how learners become aware of (Efklides, 2008) and adapt to, changes in levels of interest, motivation, and affect as they engage in self-regulated learning activities (Wolters, 2003), such as composing.

Three distinct phases of self-regulated learning have been identified in which both interest and self-efficacy can be observed in interaction. These phases correspond to the stages of self-regulation that include forethought, performance or control, and self-reflection (Schunk & Zimmerman, 2007). For instance, at the initial stage of SRL, the forethought phase, when a task is first analyzed, specific goals are set, and initial plans in approaching the task are outlined (Schunk & Zimmerman, 2007; Zimmerman, 2008), the learner holds an initial judgment of his or her competence in performing the learning task (Schunk, 2003). In addition, at this stage the interest level of the activity often determines whether or not the learner will continue to engage in the learning task, or end active involvement with the task (Hidi & Ainley, 2008).

This is also the stage at which the state of interest may first be activated by the task topic. If the state of interest continues to be maintained by continuous interaction with task supports, it can also serve to mediate the effect of self-efficacy beliefs on other aspects of the self-regulatory process, thus heightening an individual's beliefs of his or her ability to successfully monitor and control the learning process (Hidi & Ainley, 2008; Zimmerman, 2008). Studies that have examined these relationships within the writing process have indicated that interest in a specific composition topic may facilitate the writing process, but topic interest alone does not guarantee interest in writing activity (Hidi & Boscolo, 2006). Interest as a psychological state and individual interest may influence a learner's behavior on an activity in different ways. Studies have also indicated that students in different phases of interest development, such as the

situational or individual phases of interest, differ in levels of enjoyment of writing as well as levels of self-efficacy for specific writing tasks (Hidi & Boscolo, 2006). Some studies have also indicated that levels of interest and self-efficacy in the forethought phase may contribute to the resulting sense of self-efficacy at the stage of task completion (Ainley, Buckley & Chan, 2008).

At the next stage of SRL, the performance phase, the learner utilizes control processes and specific learning strategies, or self-instructional techniques, to successfully work through task requirements (Schunk & Zimmerman, 2007). This stage involves processes that occur during learning, and requires high levels of focused attention as an individual observes his or her own progress toward specific goals (Schunk & Zimmerman, 2007). The ability of interest and self-efficacy to maintain attention is well documented, and both are critical at this stage, as the learner must maintain focused attention to effectively self-monitor his or her on-going performance while progressing through the learning task (Hidi & Ainley, 2008; Schunk & Zimmerman, 2007). Studies indicate that on-task interest may also serve to mediate the influence of initial self-efficacy beliefs during engagement in learning. For instance, in one study examining interest in a writing project, researchers demonstrated that interest was a significant predictor of post-task self-efficacy during the performance phase of the self-regulated writing task (Hidi, Buckley & Chan, 2008).

At the final stage of SRL, the phase of self-reflection, the learner judges his or her own performance on a learning task (Schunk, 2003; Zimmerman, 2008). At this stage, the learner may also make attributions about either the success or failure of his or her attempts to learn effectively, and will experience self-reaction. For example, a learner may have a sense of self-satisfaction at this point, which could result in adaptive reactions, or the learner may instead have

a defensive reaction. In either situation, self-reaction would include the experience of either a positive or negative affective reaction, reflecting evaluation of progress or performance.

Self-evaluation, a metacognitive skill, is also highly important at this stage for maintaining high self-efficacy beliefs and effective performance (Schunk, 2003). For instance, self-evaluations of progress toward one's goal enhance efficacy beliefs and maintain motivation, which can spur a learner to continue efforts to achieve his or her learning goals (Schunk, 2003). In relation to composing, writers who hold positive evaluations of their writing competence are also more likely to choose to expend effort to pursue relevant goals, and persist at writing tasks, than individuals who harbor doubts about their writing abilities (Schunk & Swartz, 1993). However, in the case of struggling writers who perceive composing to be a very difficult task, and who frequently fail to achieve their writing goals, repeated negative experiences can contribute to lowered perceptions of self-efficacy, which result in feelings of anxiety or apprehension toward writing. Because self-efficacy beliefs can be strongly affected by the resulting negative emotional and physiological reactions that a struggling writer may feel at this stage, the writer may fail to use effective strategies, exert adequate effort, or successfully persist in the face of the challenge presented by such a difficult task (Klassen, 2002; Pajares, 2003; Pajares & Valiante, 2006; Troia, 2007). The ability for struggling writers to learn to effectively regulate and control negative emotional reactions (Troia, 2007) associated with negative self-evaluations related to performance on composing tasks may be critical in breaking this failure cycle, yet to date more research is needed to better understand the relationship between the writer's emotional control and resulting choice of strategies (Wolters, 2003), and levels of effort and persistence on composing tasks.

In contrast, interest experienced at the stage of self-reflection can result in stored valuing for reengagement, and may stimulate cognitive processes that support the continuation of knowledge building related to the subject of interest (Hidi & Renninger, 2006). For instance, frequently a highly interested writer also demonstrates high levels of self-efficacy in addition to a heightened ability to self-regulate the composing task; the resulting mastery of the skills that characterize an expert writer may continue to sustain or improve positive motivation toward the varied and challenging task of composing (Hidi & Boscolo, 2006).

The affective reactions of the learner during the phase of self-reflection, as well as at various stages throughout SRL, are directly linked to the processes of perception and representation that lead to focused cognition and active engagement in the activity being learned (Hidi & Renninger, 2006). Therefore, interest and self-efficacy will develop during a task if the emotional feedback occurring during engagement in the task is experienced in a positive way. Both interest and self-efficacy can also develop if the individual experiences the learning task as being personally important or meaningful on the basis of cognitive-rational evaluations (Hidi, Renninger & Krapp, 2004). In this way, interest development during a learning task involves the interaction of knowledge and cognitive processes in reciprocal relations with the experience of affect (Hidi & Renninger, 2006), which in turn has been found to strengthen self-efficacy (Niemvirta & Tapola, 2007).

The reciprocal interactions between the motivational factors of interest and self-efficacy have also been demonstrated to be critical to the self-regulated process of composing (Hidi, Berndorff & Ainley, 2002). The development of skill in composing requires characteristics that can be greatly enhanced by heightened levels of interest and self-efficacy, such as highly focused

attention, concentrated effort, behavioral and emotional self-discipline, and in some cases, a commitment that endures over time (Hidi et al., 2002; Zimmerman & Risemberg, 1997).

Integration of cognition, affect and motivation in SRL; new perspectives related to composing. Although marked progress has been made in recognizing the reciprocal influences of self-efficacy and interest in the self-regulated process of composing, many questions remain unanswered regarding the ways in which these processes may be effectively harnessed to influence levels of engagement in composing tasks (Ainley, Buckley & Chan, 2008). For instance, the relationship between the cognitive and affective aspects of writing has been addressed somewhat differently by self-efficacy and interest researchers, and their reciprocal developmental influences on self-regulation processes are not yet fully understood. Self-efficacy studies have tended to focus on the reduction of anxiety, while interest researchers have tended to focus primarily on the positive affective experiences of writers who experience high levels of interest. More research is needed to determine how the reciprocal effects of interest and self-efficacy (Ainley et al., 2008) may impact writers' ability to effectively self-regulate levels of motivation and affect (Wolters, 2003) in addition to the regulation of cognitive processes that impact the success of composing tasks (Graham, 2006; Hidi & Boscolo, 2006; Zimmerman & Risemberg, 1997).

Additionally, a recent study by Ainley, Buckley and Chan (2008) identified students' cognitive perceptions of task difficulty to be an important factor affecting the reciprocal interaction between self-efficacy and interest. The authors found that a complex, functional relationship exists between interest, self-efficacy and perceptions of task difficulty that are partially dependent on task characteristics (Ainley et al., 2008); a finding that may be very applicable to composing, in that many aspects of the composing process are highly challenging

even for expert writers, and difficulty levels vary considerably by specific composing tasks (Zimmerman & Risemberg, 1997; Ainley et al., (2008) identified judgments of task difficulty that interact with self-efficacy and interest, as a cognitive variable. However, the question may be posed as to whether affective feelings that are related to specific features of task processing, identified by Efklides (2009) as metacognitive *feelings of difficulty*, may also impact levels of interest and self-efficacy. Metacognitive feelings of difficulty are understood to result from the learner's awareness or metacognitive experiences, i.e. the "feelings, estimates, or judgments related to the features of the learning task" (Efklides, 2009, p. 76.), and are understood to have an affective character that results in access to both cognitive and affective regulatory feedback loops that impact self-regulatory behavior

Because the process of composing is a highly demanding, and frequently difficult process that drains motivational and affective as well as cognitive resources, and because levels of interest and self-efficacy are affected by both cognitive and affective factors, it is plausible that the marked impact of task difficulty on the relationship of interest and self-efficacy in the composing task may be due in part to affective *feelings of difficulty* (Efklides, 2009), which may also require motivational regulation (Wolters, 2003) on the part of the writer. This gap will be addressed within the current study through further examination of the interactions between self-efficacy, interest, and the affective influence of feelings of difficulty in the composing process (see Figures 1 and 2 below); as this may help to illuminate the specific ways in which writers become aware of (Efklides, 2008) and regulate their levels of affect and motivation (Wolters, 2003) in interaction with cognitive processes, in order to maintain and enhance their ability to effectively self-regulate the composing process.

Forethought **Performance** **Self-Reflection**

Composing \longrightarrow *Composing* \longleftrightarrow *Composing*

$\begin{array}{c} c \\ \triangle \\ m \quad a \end{array}$ $\xrightarrow{\hspace{10em}}$ $\begin{array}{c} c \\ \triangle \\ m \quad a \end{array}$ $\xrightarrow{\hspace{10em}}$ $\begin{array}{c} c \\ \triangle \\ m \quad a \end{array}$

Forethought **Performance** **Self-Reflection**

Revision \longrightarrow *Revision* \longleftrightarrow *Revision*

$\begin{array}{c} c \\ \triangle \\ m \quad a \end{array}$ $\xrightarrow{\hspace{10em}}$ $\begin{array}{c} c \\ \triangle \\ m \quad a \end{array}$ $\xrightarrow{\hspace{10em}}$ $\begin{array}{c} c \\ \triangle \\ m \quad a \end{array}$

$\begin{array}{c} c \\ \triangle \\ m \quad a \end{array}$ c =cognitions / m = motivation / a = affect in reciprocal interaction.

Figure 1. Model of the self-regulatory phases of the composing process showing interaction among cognition, motivation and affect at each recursive phase.

c
m a
c=cognitions / m = motivation / a = affect; in reciprocal interaction.

	Forethought:	Performance:	Self-Reflection:
Cognitions	Goals, Planning, Interest, S.E. Idea Generation.	Idea Generation, Organization Strategy use, mechanics	Self-evaluation, Strategy Use Revision, Editing
Motivation	Interest, S.E., Effort, Persistence	Interest, S.E., Effort, Persistence	Interest, S.E., Effort, Persistence
Affect	Feeling of Difficulty	Feeling of Difficulty	Feeling of Difficulty

MASRL perspective on Affect in SRL with implications for Composing

Both of the different theoretical models of SRL, Information Processing and Social Cognitive, illustrate different aspects of the cognitive, motivational and affective processes that occur at distinct phases of SRL processing, and both perspectives have informed models of the composing process in distinct, yet related ways. However, each model of SRL emphasizes the critical role of metacognition that enables the monitoring and control processes which allow a learner to modify choices and adapt regulatory strategies for effective self-regulation to occur. Winne and Hadwin's (2008) model offers an example of the way in which anxiety may be regulated during SRL processing through the learner's conscious regulation of his or her motivational state. However, the authors indicate that very little is currently understood regarding the question of *how* students actually achieve regulation of motivational states, and the ways in which such regulation affects the learning process. For instance, missing elements include an understanding of students' metacognitive awareness of the effectiveness of the strategies chosen to regulate motivational states, and the goals and standards by which they monitor levels of motivation (Winne & Hadwin, 2008). Pintrich (2003), a social cognitive theorist, has also stressed the clear need for a deeper understanding of the reciprocal relations between motivational, affective and cognitive factors – including the specific ways in which they influence each other, and whether these factors are regulated solely through conscious processes, or whether some are regulated automatically. Pintrich (2000) also emphasized that the issue of how learners become aware of the need to monitor and control motivational and affective elements is an important gap to address: “as in cognitive research, it can be assumed that for individuals to try to control their efficacy, value, interest, or anxiety, they would have to be aware of these beliefs and affects and monitor them at some level” (p. 463).

Current research by Efklides (2008, 2009, 2011) offers insights into the questions posed by both information processing and social cognitive theorists (Pintrich, 2000, 2003; Winne & Hadwin, 2008) of how learners become aware of their motivation and affect. These insights are illustrated through a recent model developed by Efklides (2008, 2009, 2011), based on Flavell's (1979) original conception of metacognitive monitoring as a process involving "interaction among metacognitive knowledge, metacognitive experiences, goals/tasks, and actions/strategies" (p. 909). Although metacognition had been conceptualized by information processing and social cognitive theorists as a conscious process that primarily serves the regulation of cognition, there is current evidence that metacognition also interacts with affect in the self-regulation of behavior within self-regulated learning (Efklides, 2008, 2009, 2011). For instance, researchers now recognize that "metacognition is inextricably woven with awareness of mental states and with consciousness" (Efklides, 2008, p. 277), and because it is integrally linked with both cognition and affect, metacognition is highly instrumental in the self-regulation of behavior. Efklides (2008, 2009, 2011) has argued that "metacognitive monitoring and metacognitive control function at both conscious and nonconscious levels, and are essential constituents of the self-regulation process" (2008; p. 277). The model posed by Efklides (2011) offers a categorization of metacognitive phenomena within a framework theorized by Flavell (1979), that examines specific facets of metacognition; including metacognitive knowledge, metacognitive experiences, and metacognitive skills. Efklides (2009) has examined the interconnections between these specific aspects of metacognition in order to illustrate the role of metacognitive experiences as the link between cognitive and affective aspects of SRL (Efklides, 2009).

The aspects of metacognition that include metacognitive knowledge (MK) and metacognitive skills (MS) are similar in this model to constructs in IPT and social cognitive

models, however their interaction with metacognitive experiences (ME) had not been recognized previously. Metacognitive experiences (ME) are defined as the awareness or feelings an individual experiences when initially approaching and processing information related to a learning task (Efklides, 2008). ME are important because they “make the person aware of the state of his or her cognition and trigger control processes that serve the pursued goal of the self-regulation process” (Efklides, 2008, p. 282). ME take the form of both cognitive elements such as on-line task specific knowledge, and metacognitive judgments, as well as affective elements in the form of specific metacognitive feelings, such as feeling of knowing, feeling of familiarity, feeling of confidence and feeling of difficulty.

Although the experiential and cognitive (i.e., or informational) aspects of metacognitive feelings have been fully accepted in current research, their affective nature is less well understood (Efklides, 2008). In recent research however, metacognitive feelings have been recognized as holding affective characteristics with positive or negative valences; such as *feeling of difficulty*, which is clearly associated with negative affect (Efklides, 2008).

Neuropsychological evidence supports the assertion that metacognitive feelings have both affective and cognitive characteristics, and are connected to both affective and cognitive regulatory loops (Efklides, 2008).

Metacognitive experiences (ME) are critical to the process of SRL through the awareness that they spark in the form of the learner’s judgments or estimates regarding his or her learning progress, in relation to the learner’s feelings related to progress; for instance, whether learning is progressing fluently, fairly well, with difficulty, or has failed (Efklides, 2009). In this model the learner receives cognitive and affective feedback simultaneously during progress through a task (Efklides, 2011). This perspective is highly relevant to composing because composing is a

highly challenging task that may at times tax even expert writers' skills in sustaining levels of interest and motivation (Ainley, Buckley & Chan, 2008) when textual and affective feedback indicate that effective communication has not been achieved (Hacker, Keener, & Kircher, 2009; Zimmerman & Risemberg, 1997) at various phases in the process.

Work by Efklides (2009), which examines metacognition in the dynamic, proactive SRL process builds on the three phase model of SRL described by Schunk and Zimmerman (1998), that begins with an initial phase when the "learning goal is set and the task/situational demands are decoded and appraised vis-à-vis the person's competence to deal with them" (Efklides, 2009, p. 76). Next comes the phase of planning and performance of the task, "followed by a phase of evaluation and reflection on the learning process, its outcome, and the self as learner" (Efklides, 2009, p. 77). Metacognition is critical to this dynamic model of self-regulation through its link to self-awareness, or the experience of "I as agent" capable of "acting, thinking and feeling at a specific place and time in unity with one's past (experiences, beliefs, and goals) and future goals" (Efklides, 2008, p. 283). This construct of agency (Efklides, 2008) is also critical to the process of composing, a situated process that is now understood to reflect the phenomenological experiences of the individual writer (Hacker, Keener & Kircher, 2009).

Metacognition and Affect in composing, a MASRL perspective. Although metacognition has traditionally been studied extensively in relation to the composing process in terms of primarily static, cognitive features represented through metacognitive knowledge and skills (de Kruif, 2000; Graham & Harris, 1997), composing is now understood to be contextually situated; requiring the simultaneous metacognitive monitoring and self-regulation of complex interactions between the goals, knowledge, feelings, emotions and self-efficacy beliefs of the writer, as well as the writer's mental representation of the information to be communicated

(Boekaerts & Rozendaal, 2007; Hacker, Keener & Kircher, 2009; Schunk & Zimmerman, 2007; Zimmerman & Risemberg, 1997). Recent models have conceptualized the composing process as essentially “the production of thought”, thus reflecting the “unique phenomenology of an individual” (Hacker et al., 2009); with metacognitive monitoring and control playing an integral role in the regulation of affective and motivational, as well as cognitive processes (Boekaerts & Rozendaal, 2007; Cho, Cho & Hacker, 2010; Graham, Harris & Mason, 2005; Zimmerman & Risemberg, 1997). However, although the role of metacognitive experiences had not been examined in the context of composing prior to the current study, it may prove to illuminate the nature of continuous interactions between the affective and cognitive experiences of the writer that occur during feedback throughout the composing process.

Efklides’ model (2009), which is similar to the social cognitive model in its emphasis on SRL as a cyclic process fueled by personal feedback, also stresses the critical role of a feedback loop as an essential feature in the conceptualization of metacognitive monitoring in SRL. However, unlike the social cognitive model, which emphasizes the importance of conscious, cognitive feedback processes, Efklides model (2009) includes the affective feedback loop that taps nonconscious affective responses, and occurs in simultaneous interaction with cognitive feedback; constructs which may illuminate interactions between the cognitive and affective factors that are understood to occur continuously throughout the composing process (Pajares, 2003).

Feedback is essential to SRL in that it enables effective metacognitive ability, i.e., learners’ awareness of their goals and the ability to monitor and control their behaviors, cognitions, and emotions. In particular, a learner’s metacognitive experiences enable the learner to be aware of his or her own cognitive processes, and they also act to trigger the control

processes that allow self-regulation of emotion, motivation, or cognition to occur (Efklides, 2008; 2009; 2011). In this way, metacognitive experiences offer insight into the critical question raised by both information processing and social cognitive theorists (Pintrich, 2000; Winne & Hadwin, 2008) of *how* learners become aware of the need to initiate regulatory control in the learning process.

This process can be illustrated through a description of the feedback loop mechanisms involved in the self-regulatory process. For instance, because metacognitive feelings, such as *feeling of difficulty*, are both cognitive and affective in nature, they have access to both the cognitive and affective regulatory feedback loops; with the affective loop involved in the regulation of effort and emotion, and the cognitive loop involved in regulating the sequencing of cognitive processing (Efklides, 2008). The cognitive and affective regulatory feedback loops are understood to function at both conscious and nonconscious levels. Although little is currently understood about the specific functions of the nonconscious mechanisms, the conscious process of self-regulation is understood to be based on the awareness of affect and cognition. This form of self-awareness facilitates the interaction of cognition and emotion as well as the cognitive regulation of cognition, emotion and affect (Efklides, 2008). It is also critical to the composing process, as it may help to illuminate the reasons why writers, who have necessary metacognitive knowledge related to composing, including knowledge of effective strategies, may yet fail to use their knowledge effectively (Troia, 2007).

For example, in the situation of self-regulated learning, if a learner feels difficulty when confronting a task, or detects an error in processing, an accompanying feeling of negative affect is experienced. The feeling of difficulty in this case would act as a trigger for the learner to identify the source of the feeling (e.g., whether it might be attributed to the learner's lack of

knowledge, ability, or to the difficulty of the task itself). This would be a situation in which metacognitive experiences (ME) triggered activation of the cognitive regulatory loop, and metacognitive knowledge (MK) or task specific knowledge could be used to pinpoint the exact cause of the feeling of difficulty, thus prompting increased effort and attention toward the task (Efklides, 2009). On the other hand, if the feeling of difficulty is quite strong, and learners attribute the feeling to their own lack of ability, then a reappraisal of the situation may result in the conclusion that the task should be abandoned because increased effort and cognitive activity is not possible (Efklides, 2008). In this way, ME function at the personal level ,as illustrated in Figure 3, to increase self-awareness, and their role is distinct from other aspects of metacognition that do not have access to the affective regulatory loop (Efklides, 2008).

Figure 3: The MASRL model Task x Person Level (adapted from: Efklides, 2011)

Cognition ↔	Metacognition & Affect ↔	Self-regulation of affect/effort
Task Representation <i>(Monitoring & Control)</i>	ME (Prospective) & MS / Task- related <i>(Monitoring & Control)</i>	Regulation of Affect <i>(Monitoring & Control)</i>
Cognitive Processing <i>(Monitoring & Control)</i>	ME (during) & MS / Activity-related <i>(Monitoring & Control)</i>	Regulation of Effort <i>(Monitoring & Control)</i>
Performance <i>(Monitoring & Control & Self-Observation)</i>	ME (Retrospective) & MS / Outcome-related <i>(Monitoring & Control & Self-Observation)</i>	Regulation of Affect <i>(Monitoring & Control & Self-Observation)</i>
<i>Note: Figure 3 shows the interactions among cognition, affect (as metacognitive experiences), and self-regulation of affect and effort as a person works through the stages of a learning task; at task representation, cognitive processing and performance stages. (ME = metacognitive experiences / MS – Metacognitive strategies).</i>		

Based on her integrated model of metacognition within SRL, Efklides (2009) argues that the learning process involves affect as the “drive for SRL” (p. 77), specifically the emotions, attitudes and feelings that interact with motivation to provide the incentive for self-regulated learning to occur (Efklides, 2009). From this perspective, SRL is a dynamic process that

involves the integrated orchestration of cognition and metacognition as well as motivation, affect and volition; a perspective that may serve to enhance our understanding of the writer's ability to effectively self-regulate the complex interactions between cognition, motivation and affect that influence the process of composing.

Theoretical Summary

To date, very little research has been done to determine how individuals first become aware of, then attempt to monitor and regulate their levels of motivation and affect during the learning process (Pintrich, 2000; Wolters, 2003). Nor have researchers examined these processes related to the process of self-regulated writing (Harris, Graham & Mason, 2005; Zimmerman & Risemberg, 1997). Recently however, in trying to develop a comprehensive definition of the writing process that emphasizes the writer as agent, certain researchers have argued that the central self-regulatory processes of metacognitive monitoring and control are actually the critical aspects of writing as a dynamic, agent driven process; that essentially the writing process is a metacognitive process requiring the "goal-directed monitoring and control" of the writer's cognitive and affective processes (Hacker, Keener & Kircher, 2009, p. 155).

The recent conception of the writing process by Hacker, Keener and Kircher (2009) has built on previous theories of writing such as the classic model by Hayes and Flower (1980) in which the central role of the metacognitive processes is emphasized. Although the model by Hayes and Flower (1980) was based on information processing theories of SRL (Hayes, 1996), the recent theory of writing developed by Hacker et al. (2009) also includes critical elements of the social cognitive models of writing; in which the writer, as agent, is emphasized. The process of metacognition, or thinking about one's thinking processes, is often understood from the information processing perspective in terms of specific metacognitive strategies used by the

writer to self-monitor and evaluate his or her thinking and writing processes (Hacker et al., 2009).

A number of studies have been conducted to examine specific components of the writing process and to isolate certain cognitive and metacognitive strategies that affect the production of text (Hacker, Keener, & Kircher, 2009; Harris, Graham & Mason, 2003; Hayes, 2005).

However, few studies have examined the writing process as a process of “applied metacognition” (Hacker et al., 2009, p. 154-155) in which the text produced is seen as the result of the writer’s specific self-monitoring of their affective and cognitive processes essentially reflecting the unique profile of the writer’s cognitive, affective and motivational processes. This new model of writing (Hacker et al., 2009) incorporates the key element of the information processing perspective, metacognitive monitoring (Cho, Cho, & Hacker, 2010), within a framework that focuses attention on writing as a continuously changing process in which the writer is an ever-active agent, creating meaning, adjusting strategies, and reacting to emotional, motivational and behavioral changes that occur moment by moment within the dynamic process of writing; essentially, a new perspective that integrates concepts emphasized in both information processing and social cognitive theoretical perspectives.

Although different information processing models of writing have illustrated important aspects of the recursive and self-reactive properties of writing by identifying the key writing processes of planning, translating, reviewing and monitoring text, as well as the importance of recursively monitoring written output in relation to specific writing goals (Page-Voth & Graham, 1999; Zimmerman & Risemberg, 1997) they have not specifically addressed the fact that the writer’s goals frequently change as the writing task progresses, causing the focus of metacognitive monitoring and control to change as well (Hacker et al., 2009). Additionally, the

critical roles of the simultaneously occurring social, motivational, behavioral and affective processes, that are emphasized in social cognitive models of writing but are often underemphasized in information processing models, are now recognized to have a major impact on the cognitive aspects of the writing process (Boekaerts, 1995; Schunk & Zimmerman, 2007; Zimmerman & Risemberg, 1997). The new conceptualization of the writing process by Hacker, Keener and Kircher (2009) has focused on the procedural aspects of metacognition, the way that writers employ metacognitive monitoring to remain aware of their thoughts and behaviors at each moment of the writing process, in addition to writers' ability to use metacognitive regulation or control to modify their thoughts and behaviors throughout the process (Hacker et al., 2009). However, although this model does indicate, in theory, the importance of monitoring and regulating motivational and affective states in addition to cognitive processes, it does not illustrate *how* the monitoring, control and regulation of affective and motivational states occurs, nor does it elaborate the ways in which cognitive and affective processes interact.

The model of the self-regulatory process developed by Efklides (2008; 2009; 2011) offers insights into the question of *how* learners become aware of, and able to regulate their motivation and affect in addition to cognition. A major contribution of the proposed study is the application of Efklides' model (2008; 2009; 2011; 2012) to the process of composing, allowing for an investigation of how cognition, motivation and affect are monitored and controlled. For instance, the application of this model to the composing process reveals insights into the ways in which writers initially become aware of their motivational and affective states in order to effectively monitor, control and regulate these processes in the context of the metacognitive monitoring and control essential to the composing process.

Efklides (2008) emphasized that metacognition is “inextricably woven with awareness of mental states and with consciousness” (p. 277), and that because it is integrally linked with both cognition and affect, metacognition is highly instrumental in the self-regulation of behavior. Recent research by Efklides (2008, 2009, 2011) has made the argument that both metacognitive monitoring and metacognitive control are critical elements of the self-regulatory processes that “function at both conscious and nonconscious levels” (p. 277), and she has examined the interconnections between the specific facets of metacognition, including metacognitive knowledge, metacognitive skills and metacognitive experiences, in order to illustrate the role of metacognitive experiences as the link between the cognitive and affective aspects of self-regulated learning (Efklides, 2009).

As related specifically to writing, a writer’s experience of an unpleasant affective cue such as feeling of difficulty, can indicate a sense of lack of fluency which triggers analytical processes (Efklides, 2011) that, in the case of composing, may help the writer recognize a possible failure in meaning making at which point the writer may decide to change strategies, or revise the text produced to better reflect his or her intent. Feeling of difficulty may also trigger estimates of effort and of time needed for task processing; issues which are critical in the composing process, as writers frequently face challenges during composing that require increased effort (Troia, 2006; Zimmerman & Risemberg, 1997). Although previous theories of writing, including those based on information processing and social cognitive models, have examined metacognitive skills and the metacognitive knowledge needed for effective writing (Flower & Hayes, 1980; Graham, Harris & Mason, 2005; Hayes, 2005; Troia, 2006; Zimmerman & Risemberg, 1997), they have not specified *how* a writer might become aware of the need to

utilize specific strategies, or make changes in strategy use when encountering challenges and difficulty in the composing process.

The current study has incorporated feeling of difficulty as an important variable that research suggests likely impacts the writer's ability to effectively monitor and self-regulate the composing process. This study examined feeling of difficulty closely, in interaction with motivational variables, in order to illustrate the dynamic interaction among affective, cognitive and motivational factors as the writer initiates and adjusts strategies, sustains effort, and reacts to the challenges encountered at different stages of the composing process.

Recent findings by researchers who have examined the process of self-regulated writing have consistently indicated that writing is a complex problem solving activity, as well as a meaning-making process, that always occurs in a situated context (Boekaert & Rozendaal, 2007; Hacker, Keener & Kircher, 2009; Kaplan et al., 2009; Zimmerman & Risemberg, 1997). The self-regulated writing process is therefore dependent upon the complex interactions between an individual writer's knowledge, goals, emotions, self-competence beliefs, and mental representations of the specific situation in which he or she must effectively communicate (Boekaerts & Rozendaal, 2007; Hacker, et al., 2009; Kaplan, Lictinger & Gorodetsky, 2009; Zimmerman & Risemberg, 1997). Because the process of composing requires the actively integrated and sustained orchestration of cognitive, affective, and behavioral factors, the dynamic and interactive nature of this process is difficult to capture with operational models and measures that emphasize linear cognitive and metacognitive processes only (Ainley & Patrick, 2006; Boekaerts, 1995; Efklides, 2008; Hacker et al., 2009; Patrick & Middleton, 2002; Zimmerman, 2008).

In this study, I examined self-regulated writing as essentially a process of applied metacognition (Hacker, Keener, & Kircher, 2009) that requires the ability to effectively self-monitor and self-regulate cognitive, affective, motivational and behavioral factors continuously, at each stage of the writing process (Schunk, 2003; Zimmerman & Risemberg, 1997). Through this lens, the self-regulatory process of composing is seen as a highly dynamic, individualized process that unfolds in a unique and multi-faceted way for each composing task (Hacker et al., 2009) as a series of events which are contextually embedded (Ainley & Patrick, 2006; Patrick & Middleton, 2002). An examination of the composing process from this perspective allows the researcher to explore the specific roles of students' motivational beliefs, including levels of self-efficacy, interest, effort, and persistence as well as feelings of difficulty, as writers make decisions at different phases of the composing process regarding choice and adjustment of strategies and whether or not they will sustain effort to overcome feelings of difficulty and to achieve their writing goals. Specifically, by including the affective variable *feeling of difficulty*, which is understood to trigger control processes (Efklides, 2011), findings from this study shed light on the essential question of *how* (Pintrich, 2000) writers initially become aware of the need to initiate, adjust or change strategies and regulate levels of effort and affect while engaged in the process of composing (Hacker et al., 2009; Hayes, 2006; Zimmerman & Risemberg, 1997). Information gleaned from this study also sheds light on how a writer's awareness of feeling of difficulty coupled with lowered self-efficacy beliefs and heightened effort exertion (Efklides, 2011) informs choice of strategies and the decision to proceed with or abandon the composing task.

Specific research questions posed by this study were:

1. How does a writer become aware of the need to utilize specific strategies at different phases of the composing process?
 - 1.a) What strategies do writers use at different phases of the composing process?
 - 1.b) How do writers' *feelings of difficulty* relate to choice and adjustment of strategies at different phases of the composing process?
2. In what ways do writers' *feelings of difficulty* relate to their ability to effectively monitor and self-regulate the composing process at each of the three self-regulatory phases: forethought, performance and self-reflection?
 - 2.a). How is this demonstrated by students at different levels of ability?
 - 2.b) How is this demonstrated by students with heightened levels of writing apprehension?
3. How do writers' self-efficacy beliefs, in combination with their levels of interest, relate to their levels of effort and persistence at different phases of the composing process?
 - 3.a) How are these relations demonstrated by students at different levels of ability?
 - 3.b) How are these relations demonstrated by students with heightened levels of writing apprehension?
4. How do writers' *feelings of difficulty* relate to their self-efficacy beliefs and levels of interest, at different phases in the composing process?
 - 4.a) How are these relations demonstrated by students at different levels of ability?
 - 4.b) How are these relations demonstrated by students with heightened levels of writing apprehension?

5. How do writers' *feelings of difficulty* relate to their levels of effort and persistence at different phases of the composing process?

5.a) How are these relations demonstrated by students at different levels of ability?

5.b) How are these relations demonstrated by students with heightened levels of writing apprehension?

CHAPTER III METHODS

In this study I have examined composing as a highly individualized, self-regulatory process that requires the ability to self-monitor and self-regulate cognitive, affective, and motivational factors at each moment throughout the duration of the task. This study is one of very few studies to examine the composing process as a series of self-regulatory events requiring a process of applied metacognition that reflects the unique profile of the writer (Hacker, Keener & Kircher, 2009). It is important to investigate this process through an exploratory study because very little is currently known about how metacognition, motivation and affect interact, particularly in relation with feelings of difficulty. An examination of the composing process through this lens offers insights into the distinct self-regulatory challenges faced by students at different levels of ability. In order to investigate the composing process in this way, I have utilized a descriptive case study design with multiple cases and triangulation of data sources. Data sources include direct observation, student self-report, think aloud and micro-analytic measures of cognitive, motivational and affective factors.

The current study is designed to offer a detailed investigation and analysis of the ways in which motivational, cognitive and affective factors interact as writers self-monitor, and make control decisions regarding initiation or adjustment of strategies and regulation of effort, when facing challenges and experiencing difficulty in the composing process. A specific measure of affect, *feeling of difficulty* (Efklides, 1999; 2008; 2011; Efklides & Vlachopoulos, 2012), is incorporated into this study to tap students' on-line metacognitive experiences of difficulty,

which indicate lack of fluency in processing, in order to investigate the important question of *how* writers initially become aware of the need to initiate, adjust or change strategies and regulate effort and affect while engaged in the composing process.

Specific research questions posed by this study include the following:

1.) How does a writer become aware of the need to utilize specific strategies at different phases of the composing process?

1.a) What strategies do writers use at different phases of the composing process?

1.b) How do writers' *feelings of difficulty* relate to choice and adjustment of strategies at different phases of the composing process?

2.) In what ways do writers' *feelings of difficulty* relate to their ability to effectively monitor and self-regulate the composing process at each of the three self-regulatory phases: forethought, performance and self-reflection?

2.a). How is this demonstrated by students at different levels of ability?

2.b) How is this demonstrated by students with heightened levels of writing apprehension?

3.) How do writers' self-efficacy beliefs, in combination with their levels of interest, relate to their levels of effort and persistence at different phases of the composing process?

3.a) How are these relations demonstrated by students at different levels of ability?

3.b) How are these relations demonstrated by students with heightened levels of writing apprehension?

- 4.) How do writers' *feelings of difficulty* relate to their self-efficacy beliefs and levels of interest, at different phases in the composing process?
- 4.a) How are these relations demonstrated by students at different levels of ability?
 - 4.b) How are these relations demonstrated by students with heightened levels of writing apprehension?
5. How do writers' *feelings of difficulty* relate to their levels of effort and persistence at different phases of the composing process?
- 5.a) How are these relations demonstrated by students at different levels of ability?
 - 5.b) How are these relations demonstrated by students with heightened levels of writing apprehension?

Participants

Approval from the UNC-CH Institutional Review Board was granted for this study on May 30th, 2014, and given Study No.: 13-3353. The study was advertised through fliers delivered to public middle-schools in the Southeastern U.S., and was also posted on-line through the University of North Carolina at Chapel Hill, to recruit adolescent middle-school aged students. Of the 21 participants who initially responded to the advertisement, a total of 15 volunteered to participate in the Screening process: including a total of 8 males (6 white and 2 Black/mixed race) and 6 females (4 white and 2 Hispanic/mixed race).

The nine participants selected for this study were chosen from a pool of 15 volunteers who were screened for writing ability using the Test of Written Language, 4th Edition (TOWL-4) and two subtests from the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV): the Vocabulary subtest, which measures word knowledge and concept formation, and the Matrix Reasoning subtest, which measures fluid intelligence and is used as a reliable estimate of general intellectual ability. All participants attained IQ subtest scores in the average range (37%-50% or above). Exclusion criteria included: Non-native speakers of English; Students younger or older than middle school age; IQ scores that fell below the average range. Inclusion criteria included: fluency in written and spoken English; middle school age (12-14 years); and scores on the TOWL-IV in either the low, average or high ranges.

Of the 15 students who participated in the Screening, 2 siblings had to be eliminated from the study phase due to a scheduling conflict, and a third was eliminated because he did not want to be videotaped. A fourth volunteer was eliminated because he chose not to participate in the study phase, and a fifth student cancelled. All of the students who were eliminated at the

Screening phase had attained TOWL-IV subtest scores at the 91st % percentile or above, in essence there were too many high performing students, therefore they were the ones eliminated.; leaving a total of 10 students to be placed among 3 groups: high performing; average performing; and low performing.

The 10 participants remaining were placed in groupings primarily based upon their Screening scores on the TOWL-IV Contextual Conventions and Story Composition subtests, and their gender. At least one male and one female were chosen for each of the three groupings. Participants were chosen for the High performing group if their scores fell at the 95th percentile or above on at least one or both of the two subtests; leaving two females and one male in the High Performance group. The three students with the highest subtest scores were chosen for the High performing group; thus eliminating the 10th student, whose scores fell lower than the High performing students, but higher than the Average range. The three students, two males and one female, whose scores on at least one or both of the two subtests ranged from the 50% percentile to the 91 % percentile were grouped as Average Performing. The two remaining males who scored between the 9th percentile – 2th percentile were placed in the Low Performing group. The remaining female student, whose constellation of subtest scores were considerably lower than those of the other female participants, was included in the Low Performing group, because she demonstrated spelling and vocabulary subtest scores in the 16th percentile – 37th percentile range and struggled with the writing process, although her scores on the Story Composition and Contextual Conventions subtests fell within the average range. She was considered to be more representative of a struggling writer than an average performing writer due to her below average subtest scores. The results of the screening, including scores on the TOWL-4th and WISC-IV subtests, were gathered for each student, in addition to questionnaire responses, in order to

develop a descriptive profile for the final analysis that includes demographic information: age, grade, gender, race/ethnicity, socio-economic status, and self-report evidence of a diagnosed learning disability.

A comparison of the ways in which writers at different levels of ability self-regulate the composing process is important to investigate, as previous researchers have indicated that the choice of effective strategies and the use of self-regulatory processes are distinguishing characteristics between students of high versus low ability (Corno & Mandinach, 1983), though specific learning disabilities were not targeted as a focus of this study. The screening enabled me to obtain current and specific screening information on each student's writing ability, as well as general measures of intelligence.

Data Collection

The overarching question of how motivational, cognitive and affective factors interact within the self-regulated composing process was addressed through the use of measures to tap cognition, motivation and affect at different stages throughout the composing process. A variety of sources of evidence were used for data collection (Yin, 1994), including self-report data, observation, interviews, think-aloud data, and micro-analytic measures. Measures of numerous motivation constructs included: interest, self-efficacy beliefs, and levels of effort and persistence. Measures of affect included writing apprehension, and feelings of difficulty. Cognitive strategies were analyzed through observation of strategies used by students throughout the composing task, in addition to data collected through entrance and exit interviews. The composing task was structured in phases, similar to general writing instruction. However, at each self-regulatory phase of the writing task, (i.e., 1. Forethought Phase/Planning Writing, 2. Performance Phase/Composing, and 3. Self-Reflection Phase/Revision), measures of motivation and affect

were administered. Micro-analytic metric measures of self-efficacy beliefs and interest were administered to each participant at the three key points in the self-regulatory process: before (i.e., Forethought Phase), during (i.e., Performance Phase), and after (i.e., Self-Reflection Phase) the composing task (Kitsantas & Zimmerman, 2002; Zimmerman, 2008) in order to capture the self-regulatory process in real time (Cleary & Zimmerman, 2012).

Micro-analytic assessment is an ecologically valid, context specific measurement approach that is designed to examine students' regulatory beliefs and actions during performance of specific academic tasks (Cleary & Zimmerman, 2004; 2012). Questions for these measures are highly specific, and designed to tap information at each phase of the cyclical self-regulatory process: forethought, performance and self-reflection. Micro-analytic measures differ from self-report measures because they target performance as it occurs in real time, and directly tap motivational self-beliefs and self-regulatory processes. Micro-analytic measures must be linked directly to the appropriate self-regulatory phases of task processing, and must be administered in an appropriate sequence: forethought questions administered *before*, performance questions *during* and self-reflection questions *after* actual performance of a specific academic task. The micro-analytic measures that were used in this study include single-item scales of self-efficacy beliefs, interest, and feelings of difficulty, administered at forethought, performance and self-reflection phases of the composing task.

In addition to the micro-analytic measures of self-efficacy and interest, self-report measures of writing apprehension and prospective feeling of difficulty were administered to each student before the writing task, while retrospective feeling of difficulty was administered directly following completion of the task. Observational measures of persistence, operationalized as *Off Task Behaviors* were taken at each key phase of the writing task: Planning (i.e., Forethought

Phase), Composing (i.e., Performance Phase), Revision (i.e., Self-Reflection Phase) in order to tap students' behavioral changes. *Off Task Behaviors*) were recorded by counting instances of off task behaviors and expressions of frustration exhibited by students at each phase of the writing task. Measures of effort, operationalized as task completion performance, were scored based on each student's successful completion of the writing task using the Spontaneous Subtests criteria of the TOWL-4 (Test of Written Language-4rd Edition) to analyze the quality of each student's writing task based on a comparison between their screening scores on the subtest measures and their performance on the final writing task.

In addition to the observational measures, I also collected think aloud data throughout the course of the composing task. A short introduction to the think aloud process was combined with a 5-minute practice session that was held prior to the composing task. The *think aloud* data was compared with all other measures, to capture the writer's thought processes, expressions of feelings of difficulty, decisions to use, change or abandon strategies, as well as behavioral and emotional reactions throughout the duration of the task.

The think aloud process was developed by Ericsson and Simon (1980) to enable participants to "give concurrent verbal expression to their thought (think aloud) while completing tasks without changing objectively measurable performance (accuracy)" (Fox, Ericsson & Best, 2011, p. 337). A meta-analysis of studies using think aloud methodology, conducted by Fox, Ericsson and Best (2011) demonstrated the think aloud methodology to be a legitimate method for collecting the verbalized content of thoughts as participants focus on challenging tasks. Fox et al. (2011) found that think aloud verbalizations result in "little or no reliable difference in performance across verbal report and silent conditions" (p. 338).

Finally, a semi-structured exit interview was conducted with each student following completion of the writing task to gather information about the writer's self-perceptions of interest and self-efficacy, feelings of difficulty, use of specific strategies and reasons for decisions made during the composing process (see Table 1: Administration of Study Measures).

Table 1

Administration of Study Measures

<u>Study Phase</u>	<u>Measures Administered</u>
<u>Week 1 - Screening Phase:</u>	1. TOWL 4 Baseline measure – composing task 2. WISC-IV: Vocabulary subtest; Matrix Reasoning subtest
<u>Week 2 - Study Phase:</u>	1. Entrance Interview: Knowledge of Composing Strategies
Prior to Writing Task:	Intro. to TOWER mnemonic and Planning Writing sheet / Think Aloud Practice Exercise
Self-Report Measures Administered Prior to composing:	2. Self-Report Writing Apprehension 3. Self-Report Measure of Writing Self-Efficacy 4. Self-Report Feeling of Difficulty (Prospective)
<u>Study Phase Measures admin. during composing</u>	
Forethought Phase / Planning Writing: Study Phase Measures administered during Planning:	
1. Self-Efficacy (microanalytic) 2. Interest (microanalytic) 3. Feeling of Difficulty (microanalytic) 4. Observational measure of Persistence (Off Task Behaviors) 5. Observation of Strategies Used	
Performance Phase / Composing: Study Phase Measures administered during Composing:	
1. Self-Efficacy (microanalytic) 2. Interest (microanalytic) 3. Feeling of Difficulty (microanalytic) 4. Observational measure of Persistence (Off Task Behaviors) 5. Observation of Strategies Used	
Self-Reflection Phase / Revision: Study Phase Measures administered during Revising:	
1. Self-Efficacy (microanalytic) 2. Interest (microanalytic) 3. Feeling of Difficulty (microanalytic) 4. Observational measure of Persistence (Off Task Behaviors) 5. Observation of Strategies Used	
<u>After Task Completion:</u> Study Phase Measures administered after task completion:	
1. Self-Report Feeling of Difficulty (Retrospective) 2. Exit Interview 3. Effort measured after task completion-TOWL-3 rd Ed. Spontaneous Subtests scored	

Measures

Self-report measure of Writing Apprehension. The measure of writing apprehension by Pajares and Valiante (2001) was adapted from a 26-item instrument (Writing Apprehension Test: WAT) designed by Daly and Miller (1975). Writing apprehension, was defined for the original instrument as an individual's tendencies to either approach or avoid situations that required writing accompanied by perceived evaluation (Pajares & Valiante, 1997). The authors of the revised measure (Pajares & Valiante, 2001) created a 6 point Likert scale, and reduced the instrument to 14 items to be used with middle school students; reporting an alpha coefficient of .78; previous studies reported levels ranging from .83-.93.

Self-report measure of Feeling of Difficulty, prospective and retrospective. The self-report measures of Feeling of Difficulty, prospective and retrospective, were developed by Efklides and Vlachopoulos (2012) to tap both prospective feelings of difficulty, prior to engagement in a task, and retrospective feelings of difficulty occurring after task completion. The measures are both single item inquiries phrased differently for prospective versus retrospective measures: "How much difficulty do you think you will have with this composing task?" (i.e., prospective) and "How much difficulty did you have with this composing task?" (i.e., retrospective). The prospective feeling of difficulty item was designed to be administered and answered right after the task is presented, yet before attempting it. The retrospective feeling of difficulty item is a self-report measure designed to be administered and answered after task completion. Responses ranged from 1, *not at all*, to 4, *much*, on a 4-point scale (Efklides & Vlachopoulos, 2012).

Self-report measure of writing self-efficacy. The measure of writing self-efficacy was developed using questions from an instrument adapted by Pajares and Valiante (2001) to measure writing self-efficacy for use with middle school students, and it had a reported

coefficient alpha reliability of .90. The scale, consisting of 10 items that require students to rate their confidence that they possess specific writing skills on a scale from 0 to 100 (i.e., ranging from 0: no chance, to 100: completely certain) identifies skills appropriate for middle school students' written composition.

Micro-analytic measure of self-efficacy beliefs. Specific appropriate items from the self-efficacy scale were adapted to specifications of micro-analytic measures (Zimmerman & Kitsantas, 2002) in order to tap writing self-efficacy beliefs for specific skills at each key self-regulatory phase of the writing task (i.e., Forethought, Performance, Self-Reflection). Single items tapped self-efficacy beliefs on a 5-point scale at each self-regulatory phase of the composing task as follows: the Forethought phase/Planning inquiry was worded as “How sure are you that you can plan and organize a good story?” (1 = not at all sure, to 5 = very sure); the Performance phase/Composing inquiry was worded as “How sure are you that you can write a good story effectively?” (1 = not at all sure, to 5 = very sure); Self-Reflection phase/Revising inquiry was worded as “How sure are you that you can revise your story effectively?” (1 = not at all sure, to 5 = very sure).

Micro-analytic measure of interest. This instrument, adapted from Ainley and Patrick (2006), consisted of a series of 5-point Likert-type items adapted for use as micro-analytic metric measures (Cleary & Zimmerman, 2012) which are presented in a sequence at the appropriate phase of the writing task: topic interest (Forethought Phase/Planning Writing), on-task interest (Performance Phase/ Composing task), reflective judgment on interest (Self-Reflection Phase/Revising). The topic interest measure asks the student to respond to the question “How interesting do you expect this writing topic to be?” on a 5-point scale (i.e., ranging from 1 = not at all interesting, to 5 = very interesting). The on-task interest measure asked the student to

respond to the question “How interested are you in this task at this time?” on a 5 point scale (i.e., ranging from 1 = not at all interested, to 5 = very interested). The reflective judgment of interest asked the student to respond to the question “How interesting did you find this task?” on a 5 point scale (i.e., ranging from 1 = not at all interested, to 5 = very interested).

Micro-analytic measure of feeling of difficulty. The measure of Feeling of Difficulty, adapted from Efklides (2008; 2011) was a 5 point Likert scale that asked the student to respond to the question “Are you experiencing a feeling of difficulty at this time?” Responses varied on a 5 point scale from (i.e., 1 = No feeling of difficulty, to 5 = Very strong feeling of difficulty). This scale was adapted to the requirements of micro-analytic measures (Cleary & Zimmerman, 2012) to be administered at each self-regulatory phase of the composing task (Forethought/Planning, Performance/Composing, and Self-Reflection/Revision) in order to tap feelings of difficulty at each key phase of the composing task: Planning, Composing, and Revision.

Measure of level of effort. Effort, operationalized as Task Completion Performance, was measured using the TOWL 4th Edition Spontaneous Writing subtests criteria, subtest #6 *Contextual Conventions* and subtest #7 *Story Composition*, to determine scores for each element of the final writing task, which were compared against age based baseline scores taken during screening procedures. Internal consistency was calculated by the authors of the TOWL 4th Edition (Hammill & Larson, 2009) subtests using five types of correlation coefficients including: coefficient alpha, alternate form, test-retest, alternate form, and scorer difference. Coefficient alphas were computed for the subtests using Guilford’s (1954) formula, and were calculated at nine age intervals and eight grade levels for the normative sample of 2,205 students, ages 9 through 17, residing in 17 states. Coefficients were averaged using the z transformation. Age-

based coefficient alphas are reported as follows: Contextual Conventions subtest: .80, Story Composition subtest: .74, while coefficient alpha was reported as follows for Composite Spontaneous Writing: .84. The standard error of measurement for the TOWL-4 subtests was 1 point in every case, with the exception of 2 points for the Story Composition subtest, attributed to rounding error.

The criteria used to analyze and score the quality of the students' writing tasks on the TOWL-4, included six subtests: contextual conventions-subtest 6 (measures of punctuation, spelling and capitalization), contextual language-subtest 7 (measures of language structure, grammar and vocabulary), and story construction –subtest 8 (measures for use of prose, action, sequencing, and theme). The TOWL-4 has evidenced a high degree of reliability, as it has shown consistently high levels across three types of reliability measures: Scorer Difference, Content Sampling and Time Sampling for each of the subtests, in addition to the composite tests. Reliability coefficient means for subtests and composite tests were listed as follows: Subtests include vocabulary: .90, spelling: .91, style: .87, logical sentences: .83, sentence combining: .84, contextual conventions: .82, contextual language: .84, story construction: .85, Composite tests include: Contrived Writing: .94, Spontaneous Writing: .90, Overall Writing: .95. Inter-scorer reliability coefficient means for the TOWL-4 forms A and B for all of the subtests and composite tests ranged from .83 – .97 (Hammill & Larson, 2009).

Measure of intelligence quotient: WISC-IV subtests. Screening tests included a general measure of intelligence quotient using two subtests from the Weschler Intelligence Scale for Children-Fourth Edition (WISC-IV): Vocabulary subtest and Matrix Reasoning subtest. The WISC-IV Vocabulary subtest, which was composed of 36 items, including 4 picture items and 32 verbal items, is a core Verbal Comprehension subtest that is designed to measure word

knowledge and verbal concept formation (Weschler, 2003). It also taps degree of language development, long-term memory, vocabulary knowledge, and may also tap additional abilities such as verbal expression, verbal conceptualization, and abstract thinking. Reliability coefficients for the WISC-IV Vocabulary subtest for children ages 12 yrs. – 15 yrs. range from .90 - .94 (Weschler, 2003).

The WISC-IV Matrix Reasoning subtest is a core Perceptual Reasoning subtest that measures fluid intelligence and offers reliable estimates of general intellectual ability (Weschler, 2003). The Matrix Reasoning subtest was composed of 35 items, for which a child must look at an incomplete matrix and select the appropriate missing portion from 5 response options. Four types of Matrix Reasoning items were reliable measures of visual information processing and abstract reasoning skills, and the four types of matrices used included: continuous and discrete pattern completion, classification, analogical reasoning, and serial reasoning (Weschler, 2003). The authors determined reliability coefficients for the Matrix Reasoning subtest, for children ages 12 yrs. – 15 yrs., to range from .86 to .92; and for both subtests, internal consistency reliability coefficients were “calculated with the formula recommended by Guildford (1954) and Nunnally and Bernstein (1994)” (Weschler, 2003, p. 34).

Observational measure of persistence: Off Task Behaviors. Persistence was operationalized as *Off Task Behaviors*. It was measured through observation of expressions of frustration and off tasks behaviors during each phase of the composing task by recording: *Frustration Level Rating*, by noting the number of times a student indicated frustration with the task through behaviors such as verbal, facial or bodily expressions of frustration, and *Interruptions in task processing*, by including prolonged pauses in the task, yawning, doodling, or other indications of distraction from focus on the task. During the composing task, the audio

and video recorders captured any verbal expressions and utterances from the participant that occurred throughout the task. I also used prepared measures of *Off Task Behaviors* to indicate the number of expressions of frustration or interruptions in task processing demonstrated during the composing task. The taped recordings were used as back-up for confirmation of observation data.

Interview Questions: Semi-structured Entrance Interview. The semi-structured Entrance Interview contained one question to tap the student's prior knowledge of writing strategies that may be helpful to use during a composing task. The question was worded as follows:

1. *Please list all of the writing strategies that you are familiar with which may be helpful to use during a composing task.*

Semi-structured Exit Interview. The semi-structured Exit Interview contains a series of open ended questions to tap the students' reflections on the decisions made during the writing task, their sense of apprehension, competence, interest, and feelings of difficulty experienced during the writing task, in addition to their understanding of the strategies chosen for use throughout the composing task. The interview included the following questions:

1. *Please list the different strategies that you chose to use during the composing task, and describe how they helped you.*
2. *How did you decide whether or not to use these particular writing strategies during the composing task?*
3. *Did you feel anxious or apprehensive during the composing task? Why, or why not?*
4. *How interested were you in writing the story that you were composing? Did your level of interest change while you were working on the story? Why, or why not?*

5. *How confident were you in your ability to write a good story? Did your level of confidence change while you were working on the story? Why, or why not?*
6. *Did you feel that this task was difficult? Why or why not? Did the feeling of difficulty change during the task? If so, how did it change and do you know why changed?*

Procedures

Screening. Initially, assent and consent forms were obtained for all participants and parents or guardians of participants in advance of the study. Once study participants had been selected from the pool of volunteers, and assent and consent forms had been signed, the participants were contacted to confirm the start date and schedule the duration of the study. As the researcher, I screened each potential participant by administering the TOWL-^{4th} Ed. to determine specific writing ability, after which I scored and recorded the responses, though test results were not shared with the participant at this time. The results of the screening were used to select participants for the study from three categories based on their subtest scaled scores (i.e., primarily subtests #6 Contextual Conventions and #7 Story Composition), and the composite index for Spontaneous Writing. For instance three groupings of participants included those whose scores fell in the (a) below average range: subtest scaled scores ranging from 1-7, very poor – below average (b) the average range: subtest scaled scores ranging from 8-12, average - above average (c) the superior range: subtest scaled scores ranging from 13-20, above average - very superior. The screening also included intelligence quotient (IQ) measures from two subtests of the Weschler Intelligence Scales for Children, Fourth edition (WISC-IV): Vocabulary, as a measure of word knowledge and verbal concept formation, and Matrix Reasoning, as a measure of fluid intelligence that offers a reliable estimate of general intellectual ability. The subtests measures from the WISC-IV provided base-line (IQ) measures for each of the participants that

were used in the descriptive analysis of the results. The scores on the WISC-IV subtests were not shared with the participants for the duration of the study.

The study was held in a private setting with one participant present at each session, along with the researcher. I conducted screenings with each participant individually, during an initial session. Then, the participant was asked to return a week later to participate in the actual study. During the study, each student participant was seated at a desk equipped with pencils, paper, a blank *Planning Writing* sheet, a tape recorder and a laptop equipped with a web cam.

Entrance interview. To begin the session, I turned on the audio recorder and video recorder and then administered the Entrance Interview by asking the participant the following question: “Please tell me about all of the writing strategies you are familiar with and that you know how to use during a composing task.”

Introductory practice session. The initial session was designed as an introductory session, to familiarize the participants with the think aloud protocol to be followed during the composing task, and to introduce the same basic writing strategies to each of the participants. The writing protocol, *Planning Writing*, allowed opportunities for strategic choice as the participants moved through the three phases of the self-regulatory process related to a specific composing task, which included: (a) Forethought Phase/Planning Writing, (b) Performance Phase/Composing, (c) Self-Reflection Phase/Revising.

First, I gave a written mnemonic strategy to the student that listed the steps to follow during a composing task: *TOWER* – T = Think up topic and ideas, O = Organize ideas, W = Write a draft, E = Elaborate, Evaluate, and Edit, R = Rewrite and Reread. I then read the mnemonic aloud to the student and asked if the student had used anything like it before when composing. Next, I gave the participant a sheet called *Planning Writing* that listed each step of

the writing process based on the *TOWER* mnemonic, and allowed space for the student to list ideas or make notes if desired, to help organize the writing process. The *Planning Writing* sheet, which is designed to follow standard writing instruction techniques, included the following sections: (a) Topic – *Think about the topic, and create a topic sentence*, followed by *Brainstorm: List your ideas related to the topic*, (b) Organize – *Organize and structure the writing. Develop a mind-map or outline to organize your ideas*. (c) Write – *Compose your story on the booklet provided*, (d) Edit – *Remember to check Capitalization, Organization, Punctuation and Spelling (COPS)*, Revise and Rewrite – (*ARMS*): *Add, Remove, Move or Substitute text to correct and polish your writing*. I went over the Planning Writing sheet with the student, explaining that he or she could use it to list ideas, plan and organize their writing, if they chose to do so. I then stated that the student could also use this sheet during the composing task, if they wanted to do so. I next instructed the student that whether or not they chose to use the Planning Writing sheet, they would need to tell me when they started each of the three stages of composing, by saying “planning”, “writing”, or “revision.”

Practice session think aloud. Next, I asked the participant to practice thinking aloud. The initial session was designed as an introductory practice session, to familiarize the participant with the procedure of the think aloud to be followed during the composing task. Then I asked the participant to be seated at the desk where the laptop was located. The participant was then told that he or she would be video and audio taped throughout the practice session.

I checked the audio recorder and the web cam, and then gave the following instructions: “I would like you to practice *thinking aloud* while you are working on a writing task. When I say ‘Begin’ I will give you a topic to write about. As you think about the topic and begin working on it, please just state your thoughts aloud as soon as they come into your mind. Please

try to stay focused on the writing task, but simply say aloud anything you are thinking throughout this exercise. In addition, when you start planning your writing, please say aloud 'planning'. When you begin writing the paragraph, please say 'writing', and when you start the revising process, please say 'revising'. You will have 5 minutes. Do you have any questions? Are you ready to begin?" After the participant responded affirmatively, I said: "Using the pencil and paper at your desk, please write a few paragraphs about a purple platypus. You may use the Planning Writing sheet if you choose to do so. Please remember to state your thoughts aloud throughout this exercise. You will have 5 minutes. Please begin."

I then set the timer for five minutes, and sat quietly behind the participant as the participant completed the task. I prompted the student by saying, "Please keep talking" if the participant was silent for extended periods (i.e., 7 seconds or longer). When the timer went off I stated: "Please stop and put your pencil down." I then asked the participant if he or she had any questions and whether he or she understood how to think aloud while writing. I next collected the used paper and Planning Writing sheet and instructed the participant to take a 3-minute break while I prepared materials for the composing task.

Entrance phase. During the break, I placed a fresh pencil, blank scratch paper, and a blank *Planning Writing* sheet on the desk. When the participant returned, I greeted the student, and asked him or her to sit down and make themselves comfortable. I then told the participant that he or she would be given a writing task to complete: "I am going to ask you to complete a writing task. I will give you a picture to look at, and I would like you to compose a story based on the picture. Please use characters with names, and include a beginning, middle, and end to your story. Please use paragraphs, and correct punctuation and capitalization. You will have 20 minutes to complete your story."

“However, before we begin the writing task, I would like you to fill out three brief forms that ask you how you feel about writing.” Then I administered the following measures: 1. Measure of Writing Apprehension; 2. Self-Report measure of Writing Self-Efficacy; and 3. Scale of Feelings of Difficulty (Prospective). After the participant filled out the measures, I collected the measures and replaced pencils, scratch paper, and the *Planning Writing* sheet.

Forethought phase / Planning Writing. Then I turned on the audio recorder and the web cam to video tape the composing task. I next administered the composing task, using one of two specific picture prompts, from the instructions of the TOWL-^{4th} Ed. protocol. I placed the picture prompt on the desk in front of the participant and stated: “I want you to write a story about this picture. Before you start, take time to plan your story. Make an outline on the scratch paper I have given you. This will help you plan and write your story. You will have 5 minutes to plan before you start writing your actual story. Please remember to state your thoughts aloud as you are working. Begin your outline now” (Hammill & Larsen, 2009, p. 14).

I watched the participant’s writing process for approximately two minutes after determining that he or she had begun working on the planning process and then I said “Stop” and asked the participant to fill out 3 very brief micro-analytic measures to tap Forethought Phase/Planning processes: (a) Self-Efficacy: “How sure are you that you can plan and organize a good story?”; (b) Interest: “How interesting do you find this writing topic at this time?” and (c) Feeling of Difficulty: “How difficult do you feel this task is at this time?” Once the measures had been completed, I collected the measures, reset the timer and said: “Please continue.” I then allowed the participant to complete the planning process in the remaining time allotted.

Performance phase / Composing. After the 5 minutes for planning had elapsed, I said: “You will have 15 minutes to write your story. Use your imagination to make your story as

interesting as you can. Also, use paragraphs, good spelling, and the right punctuation to make your story the best it can be. Remember to write neatly. Begin writing now” (Hammill & Larsen, 2009, p. 14). I remained sitting quietly behind, and a few yards away from the participant, continuing to watch the writer at work. I timed the participant, and after he or she had been involved in the composing stage of the task for approximately 5 minutes I said “Stop” and asked the participant to again fill out 3 very brief micro-analytic measures to tap Performance Phase/Composing processes: (a) Self-Efficacy - “How sure are you that you can write a good story effectively?”; (b) Interest - “How interested are you in this task at this time?”; and (c) Feelings of Difficulty - “How difficult do you feel that this task is at this time?” to tap Performance Phase/Composing factors. Once the measures had been completed, I collected the measures, reset the timer, and said “Please continue.”

Self-Reflection phase / Revision. I continued to monitor the writer’s progress during composing, and after 15 minutes had elapsed, I said: “Please begin the revision process.” Then, after 3 minutes had elapsed, I said “Stop” and asked the participant to again fill out 3 very brief micro-analytic measures to tap Self-Reflection/Revision processes: (a) Self-Efficacy - “How sure are you that you can revise your story effectively?”; (b) Interest - “How interesting did you find this task?”; and (c) Feelings of Difficulty - “Are you experiencing a feeling of difficulty at this time?” Once the measures had been completed, I collected the measures, reset the time, and said: “Please continue.”

Task completion phase. When the full 5 minutes for the Revision phase had elapsed, I said “Stop. Please put your pencil down”. I collected the response booklet, and then administered the retrospective self-report measure of Feeling of Difficulty, a single item inquiry that asked “How much difficulty did you have with this composing task?” Once the participant

had completed the measure I collected it, and then asked the participant to respond to the following questions for the Exit Interview:

1. Please tell me about the different strategies that you chose to use during the composing task, and describe how they helped you.
2. How did you decide whether or not to use these particular writing strategies during the composing task?
3. Did you feel anxious or apprehensive during the composing task? Why, or why not?
4. How interested were you in writing the story that you were composing? Did your level of interest change while you were working on the story? Why, or why not?
5. How confident were you that you could write a good story? Did your level of confidence change while you were working on the story? Why, or why not?
6. Did you feel that you had difficulty when you were composing this story? Did the feeling of difficulty change during the task? If so, how did it change?

The participant was asked to respond honestly to the interview questions, and his or her responses were recorded. When the participant completed the interview, I thanked him or her for participating in the research study, handed out a debriefing form and told the participant that he or she was finished, and free to leave. I later scored each student's level of effort on the task based on the operationalized measure of Task Completion Performance, which is a measure of the student's successful completion of each element of the composing task, using the Spontaneous subtest criteria of the TOWL-4.

Data Analysis

For this study I used a descriptive case-study method (Yin, 2006), with multiple cases and triangulation of data sources in order to provide a rich, descriptive analysis of each of the

individual cases, as well as a discussion of cross-case trends. The framework for this case study design was drawn from Yin's (2003) work in case study methodology. A case study design was chosen as the appropriate method by which to provide an in-depth exploration of a bounded system based on an extensive collection of data (Creswell, 2008); the bounded system being represented in this study by the process of self-regulated composing unique for each individual participant. The case study design is preferable for this study because I was posing *how* or *why* questions with a focus on exploring phenomena within the context of events that unfold in real time (Yin, 2003). In this study, nine cases were examined, with each case focused on an individual student; with three students (i.e., at least one male and one female) included at each of three writing ability levels: low performing, typically performing and high performing.

Multiple sources of evidence in the form of both qualitative and quantitative data were examined and analyzed together so that the findings are based on the convergence of evidence resulting from triangulation of data sources (Yin, 2003; 2006; 2012), including quantitative measures in the form of Likert-type scales, micro-analytic measures and sub-test scores, as well as qualitative measures in the form of interviews and observations (see Table 2: Analysis Plan Matrix, p. 95). Data triangulation is effective in addressing potential problems of construct validity, in that multiple measures are used to describe the same phenomena (Yin, 2003). Quantitative measures of motivational factors including self-efficacy, interest, effort and persistence, as well as affective measures of writing apprehension and feeling of difficulty were incorporated into the methods of data collection for this study in order to allow for comparisons of the self-regulated composing process between and among students. Quantitative measures were triangulated with qualitative measures by interpreting them in the context of observational, think aloud, and self-report data to provide a detailed description and examination of the

interactions among cognitive, motivational and affective factors at the level of the individual case. I have examined quantitative measures in the context of qualitative measures to provide an in-depth descriptive analysis of the self-regulatory process as it unfolds in real time, during composing. This approach also allows for an examination of self-regulatory patterns and trends at the level of the individual case in addition to cross case trends (Yin, 2003)

Table 2

Analysis Plan Matrix

<u>Research Questions: Nos. 1. a,b – 5. a,b</u>	<u>Measures:</u> Interviews, Observations, Measures: Self-Efficacy, Interest, Feelings of Difficulty, Writing apprehension, Persistence and Effort	<u>Plan for Analysis:</u> Descriptive case study analysis with multiple cases and triangulation of data sources using quantitative & qualitative data
1. How does a writer become aware of the need to utilize specific strategies at different phases of the composing process? 1.a.) What strategies do writers use at different phases of the composing process? 1.b.) How do writers' <i>feelings of difficulty</i> relate to choice and adjustment of strategies at each phase of composing?	1. Entrance and Exit Interviews; Observational data 1.a) Observational data Phases I, II & III 1.b) Prospective. F.O.D. & Entrance Interview; F.O.D. Phases I, II & III; Retrospective F.O.D. & Exit Interview	1.,& 1.a) Descriptive analysis at level of individual case-examining changes at different phases. 1.b) Analysis of FOD data w/ interview and observational data of strategy use.
2. In what ways do writers' <i>feelings of difficulty</i> relate to their ability to effectively monitor and self-regulate the composing process at each of the three self-regulatory phases: forethought, performance, and self-reflection? 2.a.) How is this demonstrated by students at different levels of ability? 2.b.) How is this demonstrated by students with heightened levels of writing apprehension?	2. F.O.D. Interview Data and Observation of Strategies – Phases I, II & III 2.a.) (see measures #2 above, compare across groups). 2.b.) (see measures #2 above, compare across levels of Writing Apprehension)	2. Analyze data at level of indivl. case, examining self-regulatory phase observations w/ FOD data 2.a.) Examine cross case trends by group. 2.b.) Examine cross case trends by writing apprehension level.
3. How do writers' self-efficacy beliefs, in combination with their levels of interest, relate to their levels of effort and persistence at different phases of the composing process? 3.a.) How are these relations demonstrated by students at different levels of ability? 3.b.) How are these relations demonstrated by students with heightened levels of writing apprehension?	3. Baseline S.E. & Entrance Interview; S.E. & Interest @ Phases I, II, & III; Persistence @ Phases I, II, & III and Effort score 3.a.) Measures in #3 above compared across groups 3.b.) Measures in #3 above compared across levels Writing Apprehension	3. Analysis of Cases at Indvl. level-compare SE & Interest levels against Persistence, Observation and Effort scores. 3.a.) Examine cross case trends by group. 3.b.) Examine cross case trends by writing apprehension level.
4. How do writers' <i>feelings of difficulty</i> relate to their self-efficacy beliefs and levels of interest, at different phases in the composing process? 4.a.) How are these relations demonstrated by students at different levels of ability? 4.b.) How are these relations demonstrated by students with heightened levels of writing apprehension?	4. Base-line S.E.; Prospective F.O.D.; Entrance Interview; S.E. / Int. & F.O.D. @ Phases I, II & III ; Retrospective F.O.D. & Exit Interview 4.a.) Measures in #4 above compared across groups. 4.b.) Measures in #4 above compared across levels Writing Apprehension	4. Analysis at level of indivl. case-comparing FOD against SE & Interest at different stages of process. 4.a.) Examine cross case trends by group. 4.b.) Examine cross case trends by writing apprehension level.
5. How do writers' <i>feelings of difficulty</i> relate to their levels of effort and persistence at different phases of the composing process? 5.a.) How are these relations demonstrated by students at different levels of ability? 5.b.) How are these relations demonstrated by students with heightened levels of writing apprehension?	5. Prospective F.O.D. & Entrance Interview; Observation of Persistence @ Phases I, II, & III ; Retrospective F.O.D. & Exit Interview & Effort Scores 5.a.) Measures in #5 above compared across groups. 5.b.) Measures in #5 above compared across levels of Writing Apprehension	5. Analysis at level of individual case- comparing FOD against Persistence, Observations & Effort scores. 5.a.) Examine cross case trends by group. 5.b.) Examine cross case trends by writing apprehension level.

In order to minimize errors and biases in this study and to increase reliability (Yin, 2003) the same case study protocol and procedures have been used with each participant throughout the study. In addition, a case study database was developed, with collected data kept separate from the final analysis and reporting of data. Quantitative data sources that contributed to the analysis include: self-report measures of writing apprehension, prospective feeling of difficulty, self-efficacy, and retrospective feeling of difficulty, in the form of Likert-type scales; micro-analytic measures of self-efficacy, interest and feeling of difficulty at each self-regulatory phase; and subtest scores for the TOWL-4 spontaneous writing subtests. Qualitative data sources included: entrance and exit interviews; observational measures of persistence; and transcripts of think aloud data. Additional screening measures include the WISC-IV; Vocabulary and Matrix Reasoning subtests, and the TOWL-4 subtests and composite scores. Replication logic has been used in this multiple case study design in order to increase external validity and generalizability of the findings, resulting in a more compelling and robust study than would be possible from a single case study design. The final report included descriptive analyses of each individual profile, analyses of cross-case trends, and conclusions drawn from both individual and group results.

CHAPTER IV RESULTS

This analysis included descriptive profiles of the self-regulated composing process as it unfolded in real time for each participant, followed by an examination of cross-case trends across participants at each ability level. Finally, a summary of the results addressing each research question is presented, with key findings highlighted. Quantitative measures and qualitative data have been examined and analyzed together in descriptive analyses, with findings based on the convergence of evidence from triangulation of data sources.

Descriptive Profiles: High Performing Group: Participants #1, #5, #12

Descriptive Profile Participant #1: High Performing Group.

Demographic summary. Participant #1 is a mixed race, 11 year old female, in the 6th grade at a public school who has never been diagnosed with any learning disabilities and has no I.E.P. nor 504 plan in place. Socio-economic status is indicated by her mother's attained education level: undergraduate degree.

Participant # 1 Screening. The test results at the Screening Phase for Participant #1 are listed in Table 3 below:

Table 3

Screening Summary: Participant #1

SREENING SUMMARY #1	SUBTESTS	PERCENTILE RANK	DESCRIPTION
WISC-IV	Vocabulary subtest:	98%	High
WISC-IV	Matrix Reasoning	63%	Average
TOWL-IV Form A Subtests:		PERCENTILE RANK	DESCRIPTION
	<i>Vocabulary</i>	98%	High.
	<i>Spelling</i>	91%	High.
	<i>Punctuation</i>	98%	High.
	<i>Logical Sentences</i>	75%	Average
	<i>Sentence Combining</i>	99%	High.
	<i>Contextual Conventions</i>	99%	High.
	<i>Story Composition</i>	99%	High.
TOWL-IV Composite Scores:		PERCENTILE RANK / COMPOSITE INDEX	DESCRIPTION
	<i>Contrived Writing:</i>	99% / Comp. Index: 139	High
	<i>Spontaneous Writing:</i>	99% / Comp. Index: 150	High
	<i>Overall Writing:</i>	99% Comp. Index: 143	High

Self-reported Scores. Prior to engaging in the writing task, the participant rated her level of self-efficacy for writing, level of writing apprehension, and level of prospective feeling of difficulty as follows:

Self-report scale for Self Efficacy for Writing. Participant #1 scored a 94.5, on a 100 point scale (from 0 *no chance* to 100 *completely certain*) indicating that she had a very high level of confidence in her ability to perform each of the 10 writing skills required for effective writing.

Self-report scale for Writing Apprehension. Participant #1 scored a 3.1, indicating a medium level of apprehension toward writing (with items averaged on a 6 point scale from 1 *no writing apprehension* to 6 *high apprehension*).

Prospective Feeling of Difficulty Self Report measure. In response to the question “How much difficulty do you think you will have with this composing task?” Participant #1 indicated that she expected to feel #3 *some* difficulty; ranking her response on a 4 point scale (from 1 *none at all* to 4 *much*).

Participant #1 - High Group: Entrance Interview. During the Entrance Interview, Participant #1 indicated that she did not really know any writing strategies and that her teachers “didn’t really focus on writing this year.” She was not able to describe any writing strategies other than to say that when she was writing “on her own” she liked to “try to relate to me.”

Participant #1 - High Group: Composing Task Profile. During each self-regulatory phase of the composing task (i.e., forethought phase, performance phase and self-reflection phase), the participant responded to micro-analytic measures tapping self-efficacy beliefs (SE), interest (INT) and feeling of difficulty (FOD); *See Figure 4 below*).

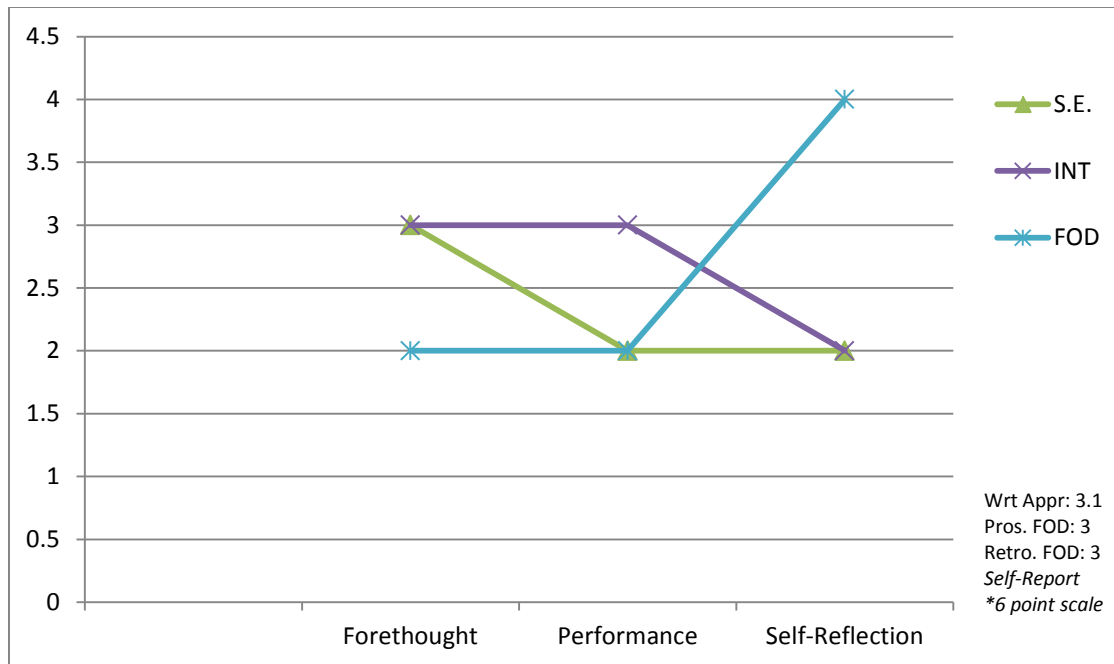


Figure 4. Participant #1: Profile Graph: Micro-analytic measures: 5 point scale
Note: Self-Report: Wrt. Appr. = Writing Apprehension; FOD = Feeling of Difficulty.

Participant #1 demonstrated a profile, as shown in Figure 4 above, in which levels of feelings of difficulty were initially lower (level 2; *a little difficulty*) than both her levels of interest and levels of self-efficacy beliefs (both at level 3; *somewhat interesting and somewhat sure*) during the Forethought phase. However, during the Performance phase, although her level of interest stayed the same, her self-efficacy beliefs fell, and her feelings of difficulty remained constant before increasing into the final phase. By the final phase of the composing task, the Self-Reflection phase, her level of interest also fell, as did her levels of self-efficacy beliefs, to level 2; *a little interesting; a little sure*, while her feelings of difficulty increased markedly, from level 2; *a little difficulty* to level 4: *moderate difficulty*.

Forethought Phase Composing: Participant # 1 - High group. The profile for Participant #1 shows that her interest and self-efficacy beliefs during the Forethought phase began at the same level (3: *somewhat sure and somewhat interesting*), while feeling of difficulty

was lower (2; *a little difficulty*). Evidence from the think-aloud data indicated that she was fairly confident of her ability to write a good story, and she was also very interested in it, because she found writing fun. Both her confidence in her ability and her interest in writing appeared to help her sustain her level of engagement at the Planning Phase, and fuel her motivation to implement strategies to effectively plan her story. For instance, she enthusiastically outlined and described the main character's name and actions, the setting, and the activities of the plot line. Her only *Off Task Behaviors* at this phase were two instances of pauses, but she did not verbalize any additional feelings of interest, or confidence at this phase other than in her responses to the micro-analytic measures.

Performance Phase Composing: Participant #1 - High group. Throughout the Planning Phase and during the Performance phase, Participant #1's level of interest remained steady, at level 3; *somewhat interesting*; however her self-efficacy beliefs dropped at this time, to level 2: *a little sure*, while her feelings of difficulty steadily rose during the Performance Phase and continued to increase into the Self-reflection phase, to level 4 *moderate difficulty*. Participant #1 had difficulty beginning her story, and she responded to the initial feelings of difficulty by realizing that she needed to implement a specific strategy to help her begin writing, so she chose to create an introduction: "I'll have to start by making like an introduction kind of...Like, I can't just say...just start in writing."

Toward the end of the Performance phase she also indicated that she would use the strategies of revising and self-evaluating: "O.K. I'll revise some of it," and also indicated confidence "I'm pretty sure that my ending is pretty good. It closes the story circle." However, she did not verbalize any additional feelings of interest nor difficulty at this phase, though her

responses in the Exit Interview indicate feelings of interest, enjoyment, confidence and also anxiety and feelings of difficulty at different points throughout the composing task.

During the Exit Interview she indicated that she used strategies when facing challenge or difficulty. She also stated that writing was sometimes fun for her, but she had not considered herself to be a good writer compared to her peers, nor did she feel that her grades were particularly good in writing. She also indicated that writing is not easy for her, but she did try to implement strategies during composing. When asked how she chose to use particular strategies she said that she decided to use strategies to make her story more interesting. However, she also felt that the lack of dialogue in her story made it less interesting. She also indicated a fair degree of confidence in her ability to write a good story, by responding that she “was pretty confident...in the beginning,” and felt that her level of confidence may have gotten stronger “Probably because I like to do it, so, since I enjoyed it, I thought that I could do it better.”

Self-Reflection Phase Composing: Participant #1 - High group. During the Self-Reflection phase of composing, levels of feelings of difficulty for Participant #1 continued to rise to level 4; *moderate difficulty*, while levels of interest fell, to meet her lowered level of self-efficacy; each at level 2; *a little interesting; a little sure*. Evidence from the think aloud transcript indicated that the participant was evaluating and revising her work during this phase: “That’s a pretty good sentence”; “maybe I should make that two sentences...”; “I think that’s better...” and editing “that’s how you spell...”

Additionally, in her responses to the Exit Interview, Participant #1 indicated that she did not like the revising part during the Self-Reflection phase: “it wasn’t really fun to revise. Even though revising is helpful, I don’t really like to,” which offers some insight into why her level of interest may have fallen. At this phase her feelings of difficulty also continued to rise, to level 4;

moderate difficulty, and she responded by focusing energy on revising and self-evaluating. Additionally, she mentioned that she felt anxious during the writing task because she felt that, overall, her story “wasn’t really interesting because there wasn’t a lot of dialogue. It was mostly description, and I like dialogue a lot, but...that’s...so I was pretty anxious about that,” which is reflected in her higher rating of feeling of difficulty at the Self-Reflection phase. The negative affect that she experienced at this phase appeared to have a negative impact on her self-efficacy and interest, because both fell as feelings of difficulty increased.

During the Exit Interview, her description of the times she experienced the most feeling of difficulty indicated transition points. For instance, when asked if she had any difficulty with the writing task, she initially said that she did not. However, she also acknowledged that sometimes “it was hard to...kind of...change from one of the topics to the other.” When asked to explain she replied: “So, like, in my brain storming thing I would write one sentence, and then I would write something else that happened. And, like, there’s usually something in between, but, I didn’t know, like how to show it...or, like, how to tell about it...It was, like kind of hard to do that.” However, there were no indications of frustration recorded during this phase of composing, and the measure *Off Task Behaviors* indicated that she only paused to erase once during this phase.

Retrospective Feeling of Difficulty: Participant # 1- High group. Interestingly, her rating on the Retrospective *Feeling of Difficulty* scale was the same as she had rated the Prospective Feeling of Difficulty: level 3; *some difficulty*, though the micro-analytic measure of *feeling of difficulty* administered during the Self-Reflection phase captured an intensified level of difficulty rated at level 4; *moderate difficulty* during the actual composing task.

Comparison of TOWL-IV Scores A/B. A comparison of the Screening (Form A) versus Exit (Form B) scores on the TOWL-IV subtests of Contextual Conventions and Story Composition showed no change in scores, indicating that her performance on both tasks demonstrated an equivalent level of effort. This was because level of *Effort* was calculated as the difference between Screening (Form A) and Exit (Form B) scores on the 2 subtests: Contextual Conventions (SEM: 1) and Story Composition (SEM: 2), and this difference did not exceed the Standard Error of Measurement.

Table 4

Screening/Exit Subtest Scores TOWL-IV: Participant #1

TOWL-IV subtests:	Subtest	SCORE	Subtest	SCORE	Effort	(SEM)
<i>Contextual Conventions</i>	Form A: S.S.	17 (99%ile)	Form B: S.S.	17 (99%ile)	0 = no change	1
<i>Story Composition</i>	Form A: S.S.	17 (99%ile)	Form B: S.S.	17 (99%ile)	0 = no change	2

Note: SEM is Standard Error of Measurement

Although Participant #1 showed no quantitative change between Screening and Exit subtests, she scored at the 99th percentile on each; these scores in combination with qualitative data indicated that she exerted a consistently high level of effort on each composing task.

Off Task Behaviors. The *Off Task Behaviors* measure indicated some pauses during the composing task: 2 pauses during the Planning stage; 6 pauses during the Composing stage; and 1 pause while revising during the Self-Reflection phase. Her only expression of frustration occurred during the Planning stage when she exclaimed: “I’ll have to start by making an introduction. I can’t just start writing.” The Exit Interview also revealed that although she did use a number of planning strategies initially, such as choosing a main character and ideas for the plot, she had little recognition of basic writing strategies; even those that she used automatically during the writing task but did not acknowledge using, such as creating an introduction, and

implementing ongoing revising strategies. When asked about the writing strategies she used, she said that the only one she used was the one that was given to her (i.e., being the picture prompt), and that she based her whole story on the picture, and “that’s basically all I did.”

Summary Participant #1 - High group. Participant #1, who consistently scored in the High range (99%ile) on both the Screening and Exit TOWL-IV subtests, Contextual Conventions and Story Composition, initially demonstrated similar levels of self-efficacy beliefs and interest (level 3; *somewhat sure; somewhat interesting*), though both self-efficacy and interest fell at the Self-Reflection phase at the same time that her feelings of difficulty markedly increased. Her levels of Writing Apprehension were in the average range. Although Participant #1 did not remember being taught any writing strategies at her school during the year, she did implement strategies while planning and revising her story, when she felt that they were needed. She also indicated experiencing feelings of difficulty primarily during transitions points in the composing task.

Descriptive Profile Participant #5: High Performing Group.

Demographic Summary. Participant # 5 is a 12 year old, Caucasian male, in the 6th grade in a home school environment, who has never been diagnosed with any learning disabilities, and has no I.E.P. nor 504 plan in place. Socio-economic status is indicated by his mother’s attained education level: undergraduate degree and his father’s attained education level: Graduate degree.

Participant #5 Screening. The test results, at the Screening Phase for Participant #5, are listed in Table 5 below.

Table 5

Screening Summary: Participant #5

SREENING SUMMARY #5	SUBTESTS	PERCENTILE RANK	DESCRIPTION
WISC-IV	Vocabulary subtest:	99.6%	High
WISC-IV	Matrix Reasoning	99%	High
TOWL-IV Form A Subtests:		PERCENTILE RANK	DESCRIPTION
	<i>Vocabulary</i>	98%	High.
	<i>Spelling</i>	50%	Average
	<i>Punctuation</i>	84%	Above Ave.
	<i>Logical Sentences</i>	95%	High
	<i>Sentence Combining</i>	99%	High.
	<i>Contextual Conventions</i>	91%	Above Ave.
	<i>Story Composition</i>	95%	High.
TOWL-IV Composite Scores:		PERCENTILE RANK / COMPOSITE INDEX	DESCRIPTION
	<i>Contrived Writing:</i>	99% / Comp. Index: 133	High
	<i>Spontaneous Writing:</i>	99% / Comp. Index: 132	High
	<i>Overall Writing:</i>	99% Comp. Index: 135	High

Self-reported Scores. Prior to engaging in the writing task, the participant rated his level of self-efficacy for writing, level of writing apprehension, and level of prospective feeling of difficulty as follows:

Self-report scale for Self Efficacy for Writing. Participant #5 scored a 79.5, on a 100 point scale (from 0 *no chance* to 100 *completely certain*); indicating that he had an average level of confidence in his ability to perform each of the 10 writing skills required for effective writing.

Self-report scale for Writing Apprehension. Participant #5 scored a 3.2, indicating a mid-range level of apprehension toward writing, with items averaged on a 6 point scale from 1; *no writing apprehension* to 6; *high apprehension*. Qualitative responses to this measure indicated that writing is moderately easy for him, though he has not always done well on writing assignments and does not feel that learning to be a good writer would be easy for him. He does not consider writing to be particularly fun, but he does not really feel nervous about writing.

Prospective Feeling of Difficulty Self Report measure. In response to the question “How much difficult do you think you will have with this composing task?” Participant #5 indicated that he expected to feel #3 *some* difficulty; ranking his response on a 4 point scale; from level 1; *none at all* to level 4; *much*.

Participant #5 - High group: Entrance Interview. During the Entrance Interview, Participant #5 indicated that he did not really know what was meant by writing strategies, but then realized that things that he remembered such as “the main sentence, the topic sentence, ... the body and then the end”...as well as “one topic per paragraph and that kind of stuff” would be considered types of writing strategies. However when asked if he had been taught any specific writing strategies, he replied “No”.

Participant #5 - High group: Composing Task Profile. During each self-regulatory phase of the composing task, forethought phase, performance phase and self-reflection phase, the participant responded to micro-analytic measures tapping self-efficacy beliefs (SE), interest (INT) and feeling of difficulty (FOD; *See Figure 5 below*).



Figure 5: Participant #5: Profile Graph: Micro-analytic measures: 5 point scale

Note: Self-Report: Wrt. Appr. = Writing Apprehension; FOD = Feeling of Difficulty.

Participant #5 demonstrated a profile (as shown in Figure 5 above) in which levels of interest remained consistent at a moderate level while self-efficacy beliefs, which were higher than interest, fell as feelings of difficulty increased during the Performance phase. Both self-efficacy beliefs and levels of interest were initially higher than feelings of difficulty at the beginning and ending phases of the composing task.

Forethought Phase Composing: Participant #5 - High group. Participant #5 demonstrated levels of interest and self-efficacy beliefs at higher levels than feelings of difficulty at the Forethought phase; with self-efficacy at level 4; *sure*, initially higher than interest, at level 3; *somewhat interesting*. Evidence from the think aloud data indicates that he found the writing task to be fairly interesting because “it seems like a scene full of action is a scene that could be

easily described...” and he used the strategy of evaluating and revising continuously while writing, and even while planning. His only *Off Task Behaviors* at this phase were 2 instances of pausing: first while he crossed out the first sentence he wrote, and next when he asked for additional paper.

Performance Phase Composing: Participant #5 - High group. Throughout the Planning Phase and during the Performance phase, Participant #5’s level of interest remained steady, at level 3; *somewhat interesting*, however his self-efficacy beliefs dropped at this time, to level 2; *a little sure*, while his feelings of difficulty steadily rose during the Performance Phase from level 2; *a little difficulty*, to level 3; *some difficulty*, before dropping again at the Self-reflection phase.

Evidence from the transcript of think aloud data indicates that Participant #5 implemented the recursive strategy of self-evaluation and revision in an ongoing manner as he was working through the composing task. He would frequently pause to question his ideas and some of his sentences, and would immediately revise to improve his story as he composed it: “I think I should have the storm raging in the background...” and he also used time management strategies to gauge the timing of his composition “How much time do I have left?”...”Not a lot of time to check...”

Participant #5 did not verbalize any feelings of interest nor difficulty at this phase, though his profile chart indicates that his *feeling of difficulty* rose from the planning stage at level 2; *a little* to level 3; *some* during the Performance phase. His responses in the Exit Interview indicate that at first he experienced “A little bit of difficulty...but, as I progressed it got a little bit more difficult. It changed a little bit...I thought it would be ... not really difficult, but it turned out to be somewhat difficult...” The Exit Interview also illustrated the way in which feelings of difficulty triggered focused analysis of the problem, and increased effort for this student: “when

it became more difficult I guess I paid more attention to how I phrased the sentences, uh ... how I spelled the words and stuff. I tried harder, yeah...when it felt more difficult.”

Participant #5’s profile also demonstrated evidence of reciprocal relations between feelings of difficulty and interest, as he acknowledged that the challenge of the task made it seem more interesting to him: “I thought it would be a little easier than it was...it was a bit more of a challenge. So it was more interesting than ...um...the story that I was thinking of was, I think um, I thought was a little too short, so I had to lengthen it, which made it a little more interesting to me.” When asked to clarify if the challenging part made it more interesting for him, he responded: “Yes. That is correct.” In the case of this student, feelings of difficulty prompted him to be proactive in exerting more effort to revise and lengthen the story, which increased his level of interest. This finding provides support for Efklides’ (2009; Efklides & Vlachopoulos, 2012) assertions of reciprocal relations among the cognitive, affective and motivational factors that influence behavior.

However, his level of confidence did not always meet his level of interest, as indicated in the chart of his profile (see figure #5). As indicated by his responses in the Exit Interview, when asked how confident he was in his ability to write a good story he replied: “Somewhat... confident.... I’ve been told that I’m a good writer, but I don’t think I am a good writer.” When asked why he felt that way he replied: “Well, because...I look more at my mistakes, and think more of them than other people do. Because...you know...they’re mistakes...” The *Off Task Behavior* measure also reflected his pattern of working to revise the text he was producing as he was composing: it indicated one pause to stop, cross out a sentence and revise during the Planning phase, three additional pauses and sighs concerning lack of time during the

Performance Phase, one request to know the amount of time remaining, and one exclamation of frustration, when he said: “Not a lot of time to check!”

Self-Reflection Phase Composing: Participant #5 - High group. During the Self-Reflection phase of composing, the levels of *feelings of difficulty* for Participant #5 fell back to level 2; *a little*, while levels of interest remained stable at level 3; *somewhat interesting*, and his level of self-efficacy rose dramatically from a low point at level 2; *a little sure*, during the Performance Phase, to level 4; *sure*, at the Self-Reflection phase.

Evidence from the think aloud transcript indicates that Participant #5 had done most of his revising in an on-going manner during the Performance phase of the composing task; for instance by implementing strategies of focusing more effort on grammar and spelling during composing especially when he faced difficulty. He used the Self-Reflection phase for some additional revising as well as to evaluate his work, by re-reading his story aloud and finally confirming that it was “OK”. He also confirmed that his effort to meet the challenges of the task sustained his interest; indicating that he succeeded in effectively self-regulating the negative affect associated with feelings of difficulty by exerting more effort and applying targeted strategies to solve the problems, which in turn sustained his interest and increased his levels of self-efficacy, which rose to level 4; *sure*. He demonstrated a very proactive response to feelings of difficulty.

Retrospective Feeling of Difficulty: Participant #5 - High group. Interestingly, his rating on the Retrospective Feeling of Difficulty scale was the same as he had rated the Prospective Feeling of Difficulty: level 3; *some difficulty*, though the micro-analytic measure of *feeling of difficulty* administered during the Self-Reflection phase captured a lower level of

difficulty, rated at level 2; *a little difficulty*, at the planning and revising stages, though it rose to level 3 during the actual performance stage of the composing task.

Comparison of TOWL-IV Scores Forms A/B. A comparison of the Screening/Exit scores on the TOWL-IV subtests of Contextual Conventions and Story Composition showed a slight change in scores, indicating that his performance on both tasks demonstrated a similar level of effort; as level of *Effort* was calculated as the difference, beyond the Standard Error of Measurement (SEM), between Screening vs Exit scores on the 2 subtests: Contextual Conventions (SEM: 1) and Story Composition (SEM: 2).

Table 6

Screening/Exit Subtest Scores TOWL-IV: Participant #5

TOWL-IV subtests	Subtest	SCORE	Subtest	SCORE	Effort	SEM
<i>Contextual Conventions</i>	Form A: S.S.	14 (91%ile)	Form B: S.S.	14 (91%ile)	0 = no change (0 pnt)	1
<i>Story Composition</i>	Form A: S.S.	15 (95%ile)	Form B: S.S.	14 (91%ile)	-1 = no change (0 pnt)	2

Note: SEM is Standard Error of Measurement

Although Participant #5 showed no measurable change beyond the Standard Error of Measurement between Screening and Exit Story Composition subtests, he still scored at the 91st percentile, indicating that he exerted a fairly consistent level of effort on each composing task.

Off Task Behaviors. The *Off Task Behaviors* measure indicated some pauses during the composing task: 2 pauses during the Planning stage; 5 pauses during the Composing stage; and 1 pause while revising during the Self-Reflection phase. His only expressions of frustration occurred during the Planning and Performance phases when he sighed and expressed concern about the lack of time to check his story.

Summary: Participant #5 - High group. Participant #5, who consistently scored in the High range (91st – 95th % percentile rank) on both the Screening and Exit TOWL-IV subtests; Contextual Conventions and Story Composition, initially demonstrated fairly high levels of self-efficacy beliefs, at level 4; *sure*, and levels of interest in the average range, at level 3; *somewhat interesting*, at both the Forethought and Self-Reflection phases. However, although his levels of interest remained constant, his levels of self-efficacy beliefs fell when feelings of difficulty increased during the Performance phase. This participant stated that he found the writing task to be fairly interesting, and he felt that an increased sense of challenge heightened his interest. He also acknowledged consciously putting out more effort, and implementing strategies when he experienced feelings of difficulty. His level of Writing Apprehension was in the average range, and although Participant #5 did not remember being taught specific writing strategies, he did implement strategies while planning and revising his story when he felt that they were needed. In fact, he used ongoing revising strategies throughout the composing task as he was developing and writing his story.

Descriptive Profile Participant #12: High Performing Group.

Demographic Summary. Participant #12 is a 12 year old, Caucasian female, in the 7th grade in a home-school environment, who has been diagnosed with Dysgraphia, and Specific Learning Disability (SLD) in Writing, in addition to her diagnosis of ADHD. She had had an I.E.P. or 504 Plan in place during Elementary School for Math, and tried to get one in place for 8th grade because she planned to move back into a Public School setting. Socio-economic status is indicated by her mother's attained education level: undergraduate degree and her father's attained education level: Graduate degree. She thought the family income was in the Upper Middle Class range.

Participant #12 Screening. The test results at the Screening Phase for Participant #12 are listed in Table 7 below:

Table 7

Screening Summary: Participant #12

SREENING SUMMARY #12	SUBTESTS	PERCENTILE RANK	DESCRIPTION
WISC-IV	Vocabulary subtest:	99.6%	High
WISC-IV	Matrix Reasoning	75%	Average
TOWL-IV Subtests: FORM A		PERCENTILE RANK	DESCRIPTION
	<i>Vocabulary</i>	99%	High.
	<i>Spelling</i>	84%	Average
	<i>Punctuation</i>	84%	Average.
	<i>Logical Sentences</i>	84%	Average
	<i>Sentence Combining</i>	91%	Above Ave.
	Contextual Conventions	99%	High
	Story Composition	95%	High
TOWL-IV Composite Scores:		PERCENTILE RANK / COMPOSITE INDEX	DESCRIPTION
	<i>Contrived Writing:</i>	99% / Comp. Index: 132	High
	<i>Spontaneous Writing:</i>	99% / Comp. Index: 142	High
	<i>Overall Writing:</i>	99% Comp. Index: 136	High

Self-reported Scores. Prior to engaging in the writing task, the participant rated her level of self-efficacy for writing, level of writing apprehension, and level of prospective feeling of difficulty as follows:

Self-report scale for Self Efficacy for Writing. Participant #12 scored a 45.7, on a 100 point scale (from 0 *no chance* to 100 *completely certain*); indicating that she had an average level of confidence in her ability to perform each of the 10 writing skills required for effective writing.

Self-report scale for Writing Apprehension. Participant #12 scored a 5.1 indicating a fairly high level of apprehension toward writing; with 6 indicating the highest level of apprehension. Evidence from the think aloud transcript reflected her high level of apprehension toward writing, as she stated: “Writing just kind of feels unnatural to me.” And, “I’m really nervous about this...but, I’m trying...”

Prospective Feeling of Difficulty Self Report measure. In response to the question “How much difficulty do you think you will have with this composing task?” Participant #12 indicated that she expected to feel *some* difficulty; ranking her response as level 3; *some* on a 4 point scale from level 1; *none at all* to level 4; *much*. It should be noted that, although she rated her prospective feeling of difficulty at level 3; *some*, she consistently indicated a higher level of *feeling of difficulty* at level 4; *moderate difficulty* in response to the micro-analytic measures administered during the composing task.

Participant #12 - High group: Entrance Interview. During the Entrance Interview, Participant #12 indicated that she did not really know “what I’m supposed to do while I’m doing a composing task.” However, she said that “I can tell you what I’m familiar with...One of them that I know is that you start with, like, the end, and then the middle, and then the beginning.” When the researcher asked her if she found it helpful, she said that she “Did not,” and that there

were no other strategies that she knew how to use. However, when asked if she had any favorite strategies, she said: “I like to look at other writers, kind of, sometimes...And I like to, like, see how they write, and take their voice, I guess you’d say... And sometimes I try to incorporate that into my stories.” However, after I introduced the TOWER mnemonic, Participant #12 indicated that although she had not ever been taught anything like it, she was familiar with a few of the concepts: “just editing and writing drafts”...”And, I’ve had to organize my ideas once...Well, actually a couple of times...in a graph...Like, there’d be the main idea and then I’d break off separate parts of it, and then I’d write 3 details about it.” She was also familiar with the mnemonic for editing that was introduced: COPS, but she knew it as “CHOPS”, which included an H for Handwriting.

Participant #12 - High group: Composing Task Profile. During each self-regulatory phase of the composing task, the Forethought phase, Performance phase and Self-Reflection phase, the participant responded to micro-analytic measures that tapped self-efficacy beliefs (SE), interest (INT) and feeling of difficulty (FOD; *See Figure 6 below*).

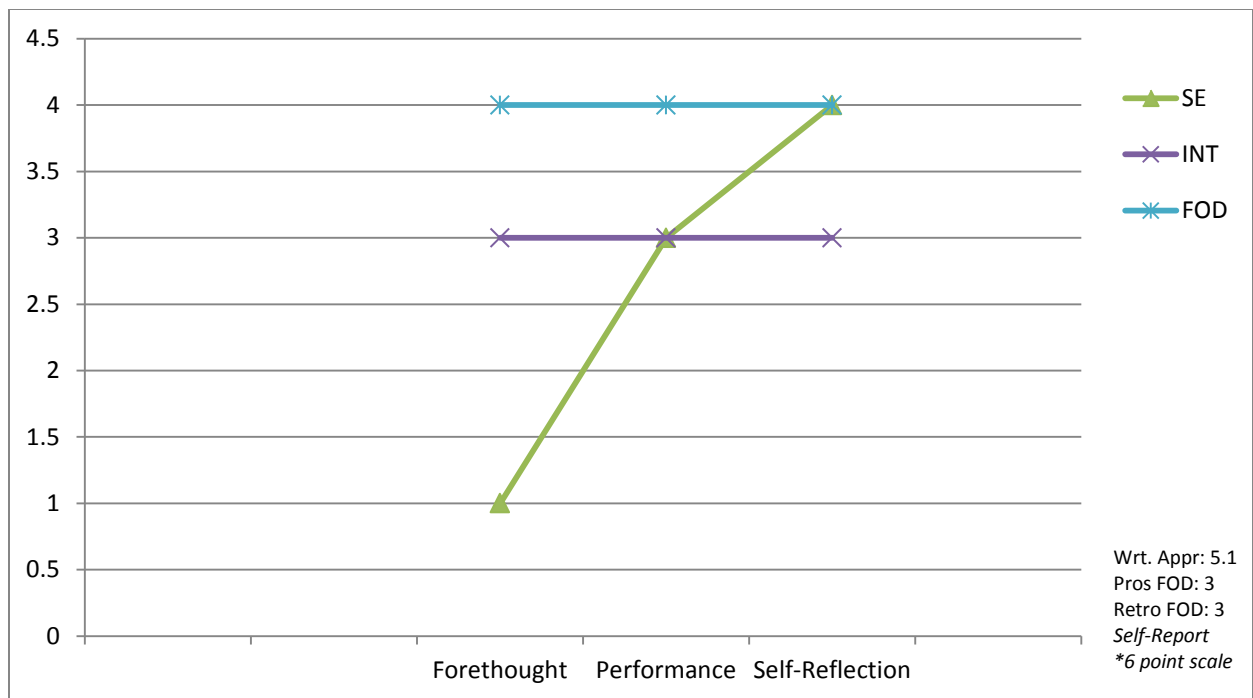


Figure 6. Participant #12: Profile Graph: *Micro-analytic measures: 5 point scale*
 Note: Self-Report: Wrt. Appr. = Writing Apprehension; FOD = Feeling of Difficulty.

Participant #12 demonstrated a profile (i.e., as in Figure 6 above) in which feelings of difficulty remained at level 4; *moderate difficulty*, and were higher than her levels of interest, at level 3; *somewhat interesting*, throughout the task. Her self-efficacy began at level 1; *not at all sure*, but rose to level 4; *sure* by the Self-Reflection phase. However, although her feelings of difficulty were relatively high, at level 4 and her level of writing apprehension was quite high, at level 5 on a 6 point scale, she was finally able to perform effectively when she implemented a strategy to jump-start her writing, and as her composition progressed successfully, her self-efficacy beliefs increased dramatically by the Self-Reflection phase.

Forethought Phase Composing: Participant #12 - High group. For Participant #12 feelings of difficulty began and remained consistently higher, at level 4; *moderate difficulty*, than her level of interest, at level 3; *somewhat interesting*. Her feeling of difficulty was also

initially markedly higher than her level of self-efficacy beliefs, which began at level 1; *not at all sure*.

Evidence from the think aloud transcript indicates that Participant #12 even found planning the story challenging, as she did not like the opening line that she was considering as she tried to brainstorm during the Planning Phase: "...It's a stormy night...It's a dark and stormy night!...About one of the most well-known clichés...in writing at least.." The feelings of difficulty she experienced at this phase triggered a change of strategy use. she chose not to use the Planning Writing sheet to create an outline, but she instead drew a mind map that connected some of her brain storming ideas for her story, as she considered the plot line and made notes for the progression of the story. Her noted *Off Task Behaviors* at this phase offer additional evidence that she felt the task to be challenging; during the Planning Phase alone it demonstrates 5 exclamations and pauses, indicating that she was stuck. For example, as she was trying to plan her story she continued to break her train of thought with concerned comments, such as: "Writing feels unnatural to me", and "Does it have to be correctly capitalized and punctuated in this...[part]"; or confused pauses, such as: "Um... um... um...." "And, they..., they...they...they...um... the fire gets....put out...And, and I can't say 'and' anymore, can I!"

Performance Phase Composing: Participant #12 - High group. Throughout the Planning Phase and during the Performance phase, Participant #12 demonstrated consistently high *feelings of difficulty*, at level 4; *moderate difficulty*, though her level of interest also remained consistent throughout the composing task, at level 3; *somewhat interesting*, and lower than her feelings of difficulty.

However, although she was stuck, the think aloud evidence shows that she did not allow herself to quit. In her case, feelings of difficulty prompted her to change strategies and exert

more effort. She decided to use an unusual strategy to jump start her story, which also appeared to help increase her self-efficacy beliefs. Evidence from the transcript of think aloud data indicates that Participant #12 had considerable difficulty trying to begin writing her story, as she repeatedly said: “I don’t know how to start it...” and, “I don’t know what to write...”

“Um...I’m really nervous about this...but, I’m trying...I’m just gonna start it off with like, with something... the best I can come up with...which is just...I’m just gonna start it with a sound, which is something I was told to do.” Soon after she implemented her strategy of beginning her story with a sound, however, the thoughts for her story began flowing, as indicated by her narration: “So, Boom!...um...the sound woke up everyone...woke up...Mr. Rowen...Mr. Rowen...The sound woke up Mr. Rowen . . .He...he quickly looked out the window...and saw a dark sky...” She also immediately recognized that her strategy had worked, and her self-efficacy beliefs began to rise, as she demonstrated by saying: “It’s going better than I expected.” Soon afterward she also demonstrated a time-management strategy by asking “How much longer do I have?”

At intervals during composing she again questioned how much time she had left, and she also acknowledged how difficult the composing task had been for her: “O.K. Well, that was really hard, but I think I did O.K. I’m glad I actually got started. Writing is just kind of hard for me...” She also indicated that she was able to read at a college level, but felt that her “writing skills, I think are at a third grade level...so that always kind of confuses me...” Despite her difficulty and apprehension however, she did acknowledge at the end of the Performance Phase that she felt that she was “O.K. at writing...so, I mean, I think I’m O.K. at writing,” as demonstrated by the micro-analytic measures that also indicated a steady increase in her self-efficacy beliefs throughout the entire composing task.

The Exit Interview also illuminated her choices of strategies in response to the feeling of difficulty because even though she felt strongly, from the very beginning, that “Writing’s scary and hard” she did try to use strategies that she thought would be helpful, even when they did not seem to work well for her: “Well, I tried to use the organizing thing, but it didn’t really work. It just made me feel kind of like ‘What am I doing?’ I wasn’t feeling like I could organize it very well”.... “I did use it while I was planning...And I decided to do that because I thought that it was worth a try.”

Her responses also indicated that she was somewhat interested in the story that she was composing: “It was...kind of interesting, like, I mean, I feel like I could have had a more...I feel like if I’d had an interesting...a more interesting topic, I might have done a little better, but....,” and she felt that her level of interest had not changed during the composing task. In contrast, when asked how confident she had been in her ability to write a good story, she replied that she was “zero” confident, because “writing’s scary and hard.” She also recognized that she had considerable difficulty, but that she felt the level of difficulty had changed during the composing task: “Kind of, when I got, like, near the end, it felt less difficult, because I knew how I was going to end it, by the last paragraph.” Despite her high apprehension, she demonstrated increased effort in response to feelings of difficulty by continuously changing or developing strategies to help her solve the problem of being “stuck” as well as sustained interest, which may have helped her maintain her engagement with the composing task. The measure *Off Task Behaviors* reflected the difficulty she experienced throughout much of the Performance Phase of the composing task, with 11 exclamations of frustration, and 5 instances of pauses or interruptions in task processing.

Self-Reflection Phase Composing: Participant #12 - High group. During the Self-Reflection phase of composing the levels of *feelings of difficulty* for Participant #12 remained consistent, at level 4; *moderate difficulty*, while levels of interest also remained stable, at level 3; *somewhat interesting*, and her level of self-efficacy beliefs rose dramatically from a low point at level 1; *not at all little sure*, during the Planning Phase, to level 4; *sure*, at the Self-Reflection phase. Although this participant initially struggled with high levels of apprehension coupled with feelings of difficulty, she was able to self-regulate effectively by increasing both her levels of effort and strategy use in order to successfully complete her composition; which in turn enhanced her self-efficacy.

Evidence from the think aloud transcript indicates that Participant #12 had done most of her revising in an on-going manner during the Performance phase of the composing task. Although she did not use verbalizations to describe how she was editing, she frequently erased and reworked her sentences during the process of composing the story at the Performance Phase, and she did very little revising at the Self-Reflection phase because she indicated that she liked it the way it was: “I think it sounds O.K. for me...So I don’t really have anything to edit or change...I like it. For me, I think its O.K., like, pretty good....I feel pretty good about this story.” She was essentially finished at this point and did not attempt to re-read, edit, or revise. Her attention appeared to wander away from the revising task, as she used the remaining time by describing her thoughts about the picture prompt. Her lack of focus on the revising task was also reflected in the measure *Off Task Behaviors* as a series of 5 interruptions in task processing.

Retrospective Feeling of Difficulty: Participant #12 - High group. The rating of

Retrospective Feeling of Difficulty, at level 3; *some*, for Participant #12 was lower than her ratings of the micro-analytic feelings of difficulty, which were rated at level 4; *moderate difficulty*, throughout the composing task

Comparison of TOWL-IV Scores A/B. A comparison of the Screening (Form A) vs Exit (Form B) scores on the TOWL-IV subtests of Contextual Conventions and Story Composition showed a slight change in scores. She demonstrated a 3 point decrease on Contextual Conventions; measured as a 2 point change beyond SEM, and a 3 point increase on Story Composition; measured as a 1 point change beyond SEM. However, her scores remained in the High range on both subtests and evidence from qualitative data also indicated that she exerted a considerable level of effort to maintain a high level of performance, with increased effort on story composition.

Table 8

Screening/Exit Subtest Scores TOWL-IV: Participant #12

TOWL-IV subtests	Subtest	SCORE	Subtest	SCORE	Effort	SEM
<i>Contextual Conventions</i>	Form A: S.S.	17(99%ile)	Form B: S.S.	14 (91%ile)	-3 = neg. change (-2 pnt)	1
<i>Story Composition</i>	Form A: S.S.	15 (95%ile)	Form B: S.S.	18 (99%ile)	+3= pos. change (1 pnt)	2

Note: SEM is Standard Error of Measurement

Summary Participant #12 - High group. Participant #12 scored in the High range on both the TOWL-IV Screening and Exit subtests for Contextual Conventions and Story Composition, however she experienced a high level of writing apprehension in addition to consistently high levels of feelings of difficulty throughout the composing task. Although her levels of interest remained consistently within the moderate range, at level 3; *somewhat*

interesting, her level of self-efficacy beliefs began at an extremely low point, at level 1; *not at all sure*, at the Forethought Phase and then increased dramatically by the Self-Reflection phase, to level 4; *sure*, to match her level of feelings of difficulty. Apparently she was aware of her increasing level of confidence because she acknowledged that she consciously applied more effort and tried to use specific strategies in response to her experiences of feelings of difficulty during the composing task. Her choice on an unconventional strategy in response to being “stuck” while trying to plan the story, coupled with her increased effort enabled her to attain a high level of performance overall.

Summary of Cross-Case Trends: High Performing Group: Participants #1, #5, #12

The High performing group consisted of two female students; one White and one mixed race, Hispanic/White, and one White male. All three students in the High performing group indicated that they had not been taught writing strategies recently, nor could they easily remember writing strategies in general. They did, however, respond with a sense of some familiarity to a few of the writing strategies that I introduced prior to the composing task. Although all of these students seemed somewhat unfamiliar with writing strategies, they each demonstrated some effective strategy use at some point during composing in response to specific, perceived challenges and feelings of difficulty. All three of the high performing students exerted increased effort and increased strategy use in response to feelings of difficulty during composing; with two students demonstrating marked increases in self-efficacy.

For instance, Participant #1 outlined her story during the planning phase by creating characters with names and plot action. When facing difficulty in this case, she also decided to use an introduction to begin composing. She also used self-evaluation strategies during composing, and she spent time revising and editing her story at the revision phase. Participant

#5 also used brain storming strategies initially, to create characters and a plot line at the planning phase, and he used self-evaluation strategies and ongoing revising during the composing phase, in addition to time-management strategies, and he also used revising and editing strategies at the revising phase. Participant #12 tried to use brain-storming strategies at the planning phase, but she got stuck at the beginning of the composing process, and finally used an unconventional strategy of starting her story with a sound, to get her ideas flowing. She used some time-management strategies, and self-evaluation during composing, but she used minimal revising or editing strategies at the revision phase.

Two of the students in the High performing group indicated self-report ratings of Self-Efficacy beliefs for writing at the range of 79 or above, on a 100 point scale, with levels of Writing Apprehension in the average range, at level 3 on a 6 point scale. These two students also demonstrated levels of self-efficacy at levels 3; *somewhat sure* and 4; *sure* respectively, and interest at level 3; *somewhat*. Both interest and self-efficacy were at levels higher than feelings of difficulty, which was at level 2; *a little*, at the Forethought Phase, while all three students indicated Prospective Feelings of Difficulty at level 3; *some*.

Participant #12 was the exception, with her self-report ratings of Self-Efficacy in the average range, at 45.7, and Writing Apprehension in the high range, at level 5 on a 6 point scale. For this student, feelings of difficulty were higher, at level 4; *moderate difficulty*, than either her levels of interest, 3; *somewhat*, or self-efficacy beliefs, that rose from level 1; *not at all sure* to level 3; *somewhat sure*, at both the Forethought and Performance phases.

All three students demonstrated levels of interest at level 3; *somewhat interesting*, with self-efficacy beliefs that were either equivalent to, or that rose higher than levels of interest at some phases. All three students also expressed awareness that they consciously increased their

levels of effort and implemented strategies in response to feelings of difficulty throughout the composing task, and all three scored in the 91st percentile or above on the TOWL-IV Exit subtest measures; indicating appropriate effort throughout the composing task, and each gave specific examples. However, because each of these students scored similarly well, at the highest percentile rank, on both the Screening and Exit subtests, there were only slight changes indicated for the measure of Effort. Evidence from the transcripts does however, indicate that all three students actively expended effort in implementing strategies throughout the composing task. *Off Task Behaviors* scores for two of these students were in the median range, of 8-9, with scores of 9; while the student with the highest level of Writing Apprehension and feelings of difficulty scored above the median: at 27 indications of frustration and off task behaviors. All three of the students in this group indicated feelings of difficulty at either the beginning or at other transition points in the composing task.

Descriptive Profiles: Average Performing Group: Participants #6, #8, #14

Descriptive Profile Participant # 6: Average Performing Group.

Demographic Summary. Participant #6 is a 14 year old, Caucasian male, in the 8th grade attending a Public school, who has been diagnosed with a Specific Learning Disability (SLD) in Writing; demonstrating poor fine motor control and difficulty with spelling. He currently has an IEP in place for Writing at his school. Socio-economic status is indicated by his mother's attained education level: Graduate degree. He has no idea of his family income range.

Participant # 6 Screening. The test results at the Screening Phase for Participant #6 are listed in Table 9 below:

Table 9

Screening Summary: Participant #6

SREENING SUMMARY #6	SUBTESTS	PERCENTILE RANK	DESCRIPTION
WISC-IV	Vocabulary subtest:	75%	Average
WISC-IV	Matrix Reasoning	84%	Average
TOWL-IV Subtests: FORM A		PERCENTILE RANK	DESCRIPTION
	<i>Vocabulary</i>	91%	Above Ave.
	<i>Spelling</i>	84%	Average
	<i>Punctuation</i>	84%	Average.
	<i>Logical Sentences</i>	95%	High
	<i>Sentence Combining</i>	63%	Average
	<i>Contextual Conventions</i>	50%	Average
	<i>Story Composition</i>	63%	Average
TOWL-IV Composite Scores:		PERCENTILE RANK / COMPOSITE INDEX	DESCRIPTION
	<i>Contrived Writing:</i>	97% / Comp. Index: 127	High
	<i>Spontaneous Writing:</i>	65% / Comp. Index: 106	Ave.
	<i>Overall Writing:</i>	93% Comp. Index: 122	Above Ave.

Self-reported Scores. Prior to engaging in the writing task, the participant rated his level of self-efficacy beliefs for writing, level of writing apprehension, and level of prospective feeling of difficulty as follows:

Self-report scale for Self Efficacy for Writing. Participant #6 scored an 84, on a 100 point scale (from 0 *no chance* to 100 *completely certain*); indicating that he had a somewhat higher than average level of confidence in his ability to perform each of the 10 writing skills required for effective writing.

Self-report scale for Writing Apprehension. Participant #6 scored a 4.2, indicating a somewhat heightened level of apprehension toward writing; with 6 indicating the highest level of apprehension. There was no evidence from the think-aloud transcript to indicate additional apprehension toward writing.

Prospective Feeling of Difficulty Self Report measure. In response to the question “How much difficulty do you think you will have with this composing task?” Participant #6 indicated that he expected to feel *some* difficulty; ranking his response as level 3 on a 4 point scale, from level 1 *none at all* to level 4 *much*.

Participant # 6 - Average group Entrance Interview. During the Entrance Interview, Participant #6 indicated that he did not really know or use any writing strategies: “No. Not really. ... I don’t really use strategies, I just write.... I just start to write when I think of the story...” He opted not to use the Planning Writing sheet during the composing task, nor did he use the allotted revising time.

Participant #6 - Average group Composing Task Profile. During each self-regulatory phase of the composing task, the Forethought phase, Performance phase and Self-Reflection phase, the participant responded to micro-analytic measures that tapped self-efficacy beliefs (SE), interest (INT) and feeling of difficulty (FOD; *See Figure 7 below*).

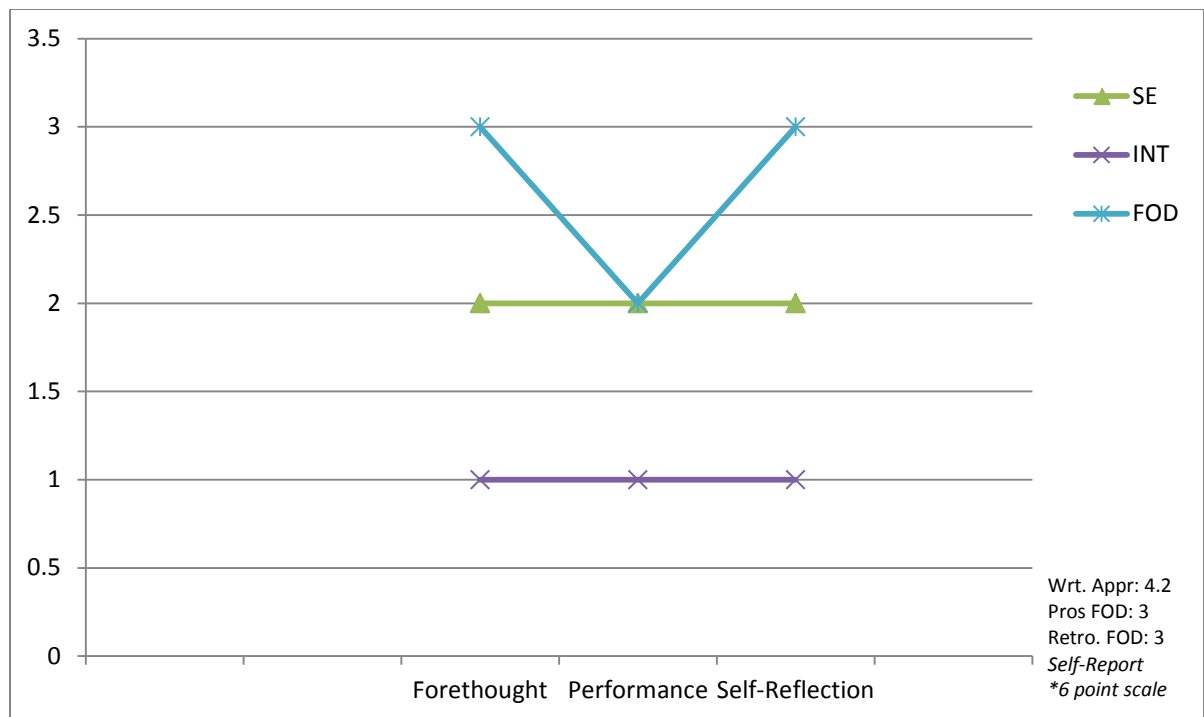


Figure 7. Participant #6: Profile Graph: Micro-analytic measures: 5 point scale
Note: Self-Report: Wrt. Appr. = Writing Apprehension; FOD = Feeling of Difficulty.

Participant #6 demonstrated a fairly consistent profile (as in Figure 7, above) in that both his levels of interest, level 1; *not at all interesting*, and self-efficacy, level 2; *a little sure*, remained constant and lower than his feelings of difficulty which remained at level 3; *some difficulty* at most phases of the composing task. The level of writing apprehension for Participant #6 was in the average range.

Forethought Phase Composing: Participant #6 - Average group. Participant #6 demonstrated feelings of difficulty that were initially higher than both his self-efficacy beliefs, and his level of interest; although his level of feeling of difficulty fell during the Performance Phase to level 2; *a little difficulty*, it increased back to a level 3; *some difficulty*, at the Self-Reflection phase. His self-efficacy beliefs remained higher than his level of interest throughout the composing task.

Evidence from the Exit Interview indicates that he did have difficulty with the writing task, “Cuz normally it takes me a while to figure out what I’m gonna write” and the fact that the writing task was timed “Kind of” bothered him. However, he also acknowledged that “... once I get an idea it’s not that difficult.” Participant #6 chose not to use the Planning Writing sheet to plan his story during the Forethought Phase, nor did he try to make an outline or do any brainstorming, but instead simply began narrating and writing the story.

Evidence from the Entrance and Exit interviews indicate that he only knew one writing strategy, called the ERASER Rule: “It’s where you state the question and then answer the question, and then cite, and use words from the passage, then explain...” which was his favorite writing strategy, but was only appropriate to use for an essay in which he had a specific question prompt. When asked if he used any strategies for the current writing task he said: “I didn’t really use any strategies. I just looked at the picture and made up a story.” Evidence from the think aloud protocol demonstrated that he did not use any strategies during planning, but simply narrated the story as he wrote it.

Performance Phase Composing: Participant #6 - Average group. During the Performance Phase of composing, Participant #6 demonstrated lowered feelings of difficulty; which dropped to level 2; *a little difficult*. However, his very low level of interest, at level 1; *not at all interesting*, and his fairly low self-efficacy beliefs, at level 2; *a little sure*, remained consistent. Evidence from the transcript of think aloud data indicated that he did not attempt to use any strategies during the composing task. He simply continued to narrate the story word for word as he wrote it, without erasing anything or changing anything as he was writing.

The results of the Exit Interview demonstrated that he did not know whether he felt apprehensive or nervous about writing, but he did state that “I don’t like writing”, and he was

“Not interested” in writing the story that he was composing. When asked how confident he was that he could write a good story, at first he replied that he didn’t know, but then he said he felt “sure” that he could write a good story; though he felt that it was difficult because it took him a while to figure out what to write, although once he had an idea the level of difficulty dropped.

During the Performance phase Participant #6 did show 6 instances of *Off Task Behaviors*: 2 expressions of frustration, and 4 pauses, during which he stated that he was finished, and he did not focus much energy or time on trying to revise or edit his work.

Self-Reflection Phase Composing: Participant #6 - Average group. During the Self-Reflection phase of composing, the levels of feelings of difficulty for Participant #6 rose back to the same level as they had been at the beginning, at level 3; *some difficulty*, while levels of interest also remained stable, at level 1; *not at all interesting*, and his level of self-efficacy beliefs remained constant, at level 2; *a little sure*.

Evidence from the think aloud transcript indicates that Participant #6 did not spend any time or effort in editing and revising his story. During the time allotted to revise his story, he expressed frustration and said “I already did that,” and did not exert effort to attempt to further edit or revise, but spent the remaining time tapping his pencil persistently.

Retrospective Feeling of Difficulty: Participant #6 - Average group. In his response to the Retrospective Feeling of Difficulty self-report measure, he did indicate that he felt *some difficulty*; level 3, during the composing task.

Table 10

Screening/Exit Subtest Scores TOWL-IV: Participant #6

TOWL-IV subtests	Subtest	SCORE	Subtest	SCORE	Effort	SEM
<i>Contextual Conventions</i>	Form A: S.S.	10 (50%ile)	Form B: S.S.	14 (91%ile)	+4 = pos. change (+3 pnt)	1
<i>Story Composition</i>	Form A: S.S.	11 (63%ile)	Form B: S.S.	12 (75%ile)	+1= pos. change (0 pnt)	2

Note: SEM is Standard Error of Measurement

Although his responses to the interviews and the think aloud indicated low levels of interest with little strategy use, Participant #6 performed better on the Exit subtests; with an increase of 4 points on the Contextual Conventions subtest, measured as a 3 point change beyond SEM. He also showed an increase of 1 point on the Story Composition subtest; measured as 0 change beyond SEM. His increase in scores indicated that his level of effort improved somewhat from the Screening to Exit measures.

Summary Participant #6 - Average group. Participant #6 scored in the Average – Above Average range on both the TOWL-IV Screening and Exit subtests for Contextual Conventions and Story Composition. He experienced a level of writing apprehension that was somewhat heightened, but within the average range, at level 4.2 on a 6 point scale, in addition to feelings of difficulty at level 3; *some difficulty*, that were higher than his levels of either self-efficacy or interest throughout the composing task. His levels of interest remained consistently low: at level 1; *not at all interesting*, and his level of self-efficacy beliefs also remained consistently low: at level 2; *a little sure*, throughout the task. Evidence from the think aloud and interviews indicated that he did not exert much effort or strategy use in response to feelings of difficulty. Instead, he chose not to use strategies, and claimed that the only writing strategy he

knew how to use was not relevant to the story composition task. However, despite his low level of interest he continued to perform in the average-high average range, with a 3 point increase in his score on the Contextual Conventions subtest. He stated that he did not like writing, and did experience difficulty, though he felt most difficulty initially in deciding what to write about.

Descriptive Profile Participant No. 8: Average Performing Group.

Demographic Summary.

Participant #8 is a 14 year old, Caucasian male, in the 8th grade attending a Public school, who has never been diagnosed with a Learning Disability, and does not have an I.E.P. nor a 504 plan in place. Socio-economic status is indicated by his mother's attained education level: Undergraduate degree, and his father's education level: Graduate degree. He believes his family income is in the upper Middle class range.

Participant No. 8 - Average group Screening. The test results at the Screening Phase for Participant #8 are listed in Table 11 below:

Table 11

Screening Summary: Participant #8

SREENING SUMMARY #8	SUBTESTS	PERCENTILE RANK	DESCRIPTION
WISC-IV	Vocabulary subtest:	91%	Above Average
WISC-IV	Matrix Reasoning	75%	Average
TOWL-IV Subtests FORM A		PERCENTILE RANK	DESCRIPTION
	<i>Vocabulary</i>	91%	Above Ave.
	<i>Spelling</i>	75%	Average
	<i>Punctuation</i>	84%	Average.
	<i>Logical Sentences</i>	91%	Above Ave.
	<i>Sentence Combining</i>	84%	Average
	<i>Contextual Conventions</i>	91%	Above Ave.
	<i>Story Composition</i>	84%	Average
TOWL-IV Composite Scores:		PERCENTILE RANK / COMPOSITE INDEX	DESCRIPTION
	<i>Contrived Writing:</i>	97% / Comp. Index: 127	High
	<i>Spontaneous Writing:</i>	95% / Comp. Index: 125	High
	<i>Overall Writing:</i>	97% Comp. Index: 105	High

Self-reported Scores. Prior to engaging in the writing task, the participant rated his level of self-efficacy beliefs for writing, level of writing apprehension, and level of prospective feeling of difficulty as follows:

Self-report scale for Self Efficacy for Writing. Participant #8 scored a 15, on a 100 point scale, from 0 *no chance* to 100 *completely certain*; indicating that he had a very low level of confidence in his ability to perform each of the 10 writing skills required for effective writing

Self-report scale for Writing Apprehension. Participant #8 scored a 5.9; indicating a high level of apprehension toward writing, with level 6 indicating the highest level of apprehension.

Prospective Feeling of Difficulty Self Report measure. In response to the question “How much difficulty do you think you will have with this composing task?” Participant #8 indicated that he expected to feel *some* difficulty; ranking his response as level 3 on a 4 point scale; from level 1; *none at all* to level 4; *much*.

Participant #8 - Average group: Entrance Interview. During the Entrance Interview, Participant #8 indicated that he did not really know or use any writing strategies: “No. Not really. ... I don’t really use strategies, I just write.... I just start to write when I think of the story...” When asked if he had ever learned any writing strategies, he replied “No, Not really.” He opted not to use the Planning Writing sheet during the composing task.

Participant #8 - Average group: Composing Task Profile. During each self-regulatory phase of the composing task, the Forethought phase, Performance phase and Self-Reflection phase, the participant responded to micro-analytic measures that tapped self-efficacy beliefs (SE), interest (INT) and feeling of difficulty (FOD; *See Figure 8 below*).

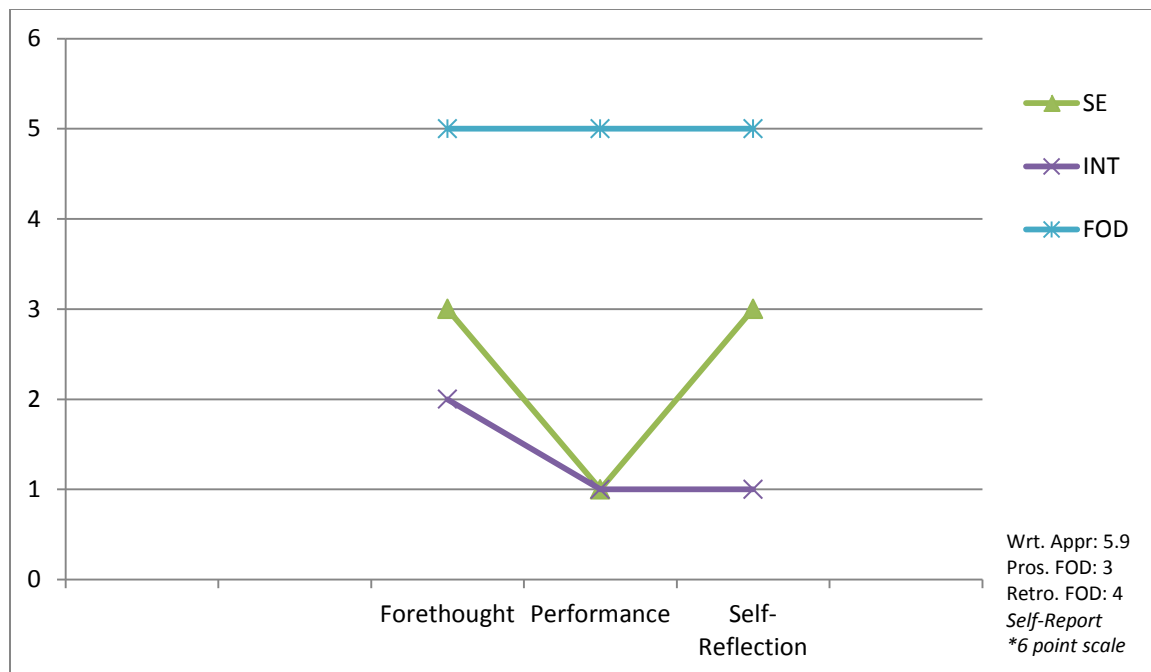


Figure 8. Participant #8: Profile Graph: Micro-analytic measures: 5 point scale

Note: Self-Report: Wrt. Appr. = Writing Apprehension; FOD = Feeling of Difficulty.

Participant #8 demonstrated a profile (as in Figure 8 above) showing consistently high levels of feelings of difficulty and a high level of writing apprehension throughout the composing task. His feelings of difficulty remained consistent, at level 5; *very strong feeling of difficulty*. Both his levels of interest, from level 2 - level 1; *a little interesting - not at all interesting*, and self-efficacy, from level 3 – level 1; *somewhat sure – not at all sure*, remained lower than his feelings of difficulty throughout the task; with interest lower than self-efficacy at two phases.

Forethought Phase Composing: Participant #8 - Average group. Participant #8 demonstrated a profile in which levels of writing apprehension and feelings of difficulty were initially higher, at level 5; *very strong feeling of difficulty*, than either his level of self-efficacy beliefs, which began at level 3; *somewhat sure*, or his level of interest which began at level 2; *a little interesting*. His feeling of difficulty was much higher than both his level of self-efficacy beliefs, and interest, although the levels of both self-efficacy beliefs and interest fell during the

Performance Phase to level 1; *not at all sure* and *not at all interesting* respectively, while feeling of difficulty remained the same.

Evidence from the Exit interview indicated that he was not very interested in writing the story and felt that “It was kind of boring....It wasn’t really a topic that I was interested in.” He also indicated that the level of difficulty “got more stressful in some places rather than others...” for instance “When I got stuck, or didn’t know what to write... “

Participant #8 did use strategies to plan his story by listing ideas, and creating a main character named Mitch. He also listed the basic sequence to the plot. Evidence from the *Off Task Behaviors* measure indicated that he had only 1 pause during the Planning phase of composing.

Performance Phase Composing: Participant #8 - Average group. During the Performance Phase of composing Participant #8 demonstrated a drop in both self-efficacy beliefs and interest: self-efficacy dropped to level 1; *not at all sure*; and interest dropped to level 1; *not at all interesting*.

Evidence from the think-aloud transcript indicated initial confusion on how to begin the story: “Um....How do I start?” However, in response to feeling of difficulty, or feeling stuck, he did use the strategy of referring to his plan at the beginning, and also paused at a later point in his composing to again reread the plan in order to guide his composition. He finally began his story by trying to describe the main character and how he would connect the character to the plot line: “I think I’ll make the storm happen after him and his siblings get home from school.” After he had written much of the story, he demonstrated self-monitoring when he voiced concern about whether or not he had included everything he meant to include: “Did I leave anything out?”

Although he did use some effective strategies, the Exit Interview indicated a lack of awareness of strategy use, because in response to the question about the different strategies he chose to use, he responded that he only used one: “Kind of just put the major events I thought and then elaborated a little bit on this, and it helped I guess...a little bit...” and that he used it “because it’s the only one I know.”

His responses also indicated that he was not interested in the story, and he was aware that his low level of interest remained constant throughout all stages of the composing task. He did, however, acknowledge attempting to change or use new strategies when he faced a feeling of difficulty during composing: “When I got stuck, or didn’t know what to write....um...It’s like...you finish a sentence or whatever, and then you have to... the sentence doesn’t lead on to anything else...so you have to either go back and change it, or change subjects and all...start a new paragraph, and all.” When asked if there is anything that helps him when he is stuck, he indicated: “Um...I go back to my planning sheet, or I just move on to the next event...just kind of abruptly.” He also recognized his lack of confidence in his ability to write a good story: ‘Not very confident, because my writing is not really the best.’ His low level of self-efficacy was reflected during the Performance phase, but it increased markedly by the Self-Reflection phase. The *Off Task Behaviors* measure showed that he demonstrated some pauses and mild exclamations of frustration, such as long sighs, during the Performance phase of the task; total of 8.

Self-Reflection Phase Composing: Participant #8 - Average group. During the Self-Reflection phase of composing, his feelings of difficulty remained at level 5; *very strong feeling of difficulty*, but levels of self-efficacy beliefs increased to level 3; *somewhat sure*, though interest remained low, at level 1; *not at all interesting*.

Evidence from the think aloud transcript indicates that Participant #8 did not spend much time revising his story, though he did mention that he did decide to “just reread it and check for grammatical errors.” He did erase and revise a couple of words, but he made no comments about his overall evaluation of the story, nor any comments about how he might revise it. The *Off Task Behaviors* measure indicated only one brief pause during the Self-Reflection phase.

Retrospective Feeling of Difficulty: Participant #8 - Average group. In his response to the Retrospective Feeling of Difficulty self-report measure, he did indicate that he felt *much difficulty*, level 4, during the composing task.

Table 12

Screening/Exit Subtest Scores TOWL-IV: Participant #8

TOWL-IV subtests	Subtest	SCORE	Subtest	SCORE	Effort	SEM
<i>Contextual Conventions</i>	Form A : S.S.	14 (91%ile)	Form B : S.S.	13 (84%ile)	- 1 = neg. change (0 pnt)	1
<i>Story Composition</i>	Form A : S.S.	13 (84%ile)	Form B : S.S.	14 (91%ile)	+1= pos. change (0 pnt)	2

Note: SEM is Standard Error of Measurement

Although his responses to the interviews and the think-aloud indicated relatively low levels of interest, and moderate self-efficacy, Participant #8 performed slightly better on the Exit Story Composition subtest, with an increase of 1 point, though his performance decreased by 1 point on the Contextual Conventions subtest, neither score was measurable beyond the Standard Error of Measurement; indicating no overall change in level of effort.

Summary Participant #8 - Average group. Participant #8 scored in the Average – Above Average range on both the TOWL-IV Screening and Exit subtests for Contextual Conventions and Story Composition. He experienced a level of writing apprehension that was quite high, at level 6 on a 6 point scale, and feelings of difficulty that were also high, at level 5;

very strong feeling of difficulty, throughout the writing task. His feelings of difficulty were markedly higher than both his levels of self-efficacy and interest however he did implement some effective strategy use, and maintained performance at the Average level on post subtests. He stated that he found the writing topic kind of boring, and did not feel that he was a very good writer. He did acknowledge that he felt the writing task was stressful, especially when he got stuck and did not know what to write, and he also acknowledged using strategies when he felt “stuck.” This participant was the only participant to indicate additional difficulty with the think aloud process.

Descriptive Profile Participant No. 14: Average Performing Group.

Demographic Summary. Participant #14 is a 12 year old, Hispanic female, in the 6th grade attending a Private school, who has never been diagnosed with a Learning Disability, and does not have an IEP or 504 plan in place. Socio-economic status is indicated by her mother’s attained education level: Undergraduate degree, and her father’s education level: High School diploma. She believes her family income is in the lower class range.

Participant #14 Screening: The test results at the Screening Phase for Participant #14 listed in Table 13 below:

Table 13

Screening Summary: Participant #14

SREENING SUMMARY #14	SUBTESTS	PERCENTILE RANK	DESCRIPTION
WISC-IV	Vocabulary subtest:	91%	Above Average
WISC-IV	Matrix Reasoning	84%	Average
TOWL-IV Subtests: FORM A		PERCENTILE RANK	DESCRIPTION
	<i>Vocabulary</i>	75%	Average
	<i>Spelling</i>	37%	Average
	<i>Punctuation</i>	50%	Average.
	<i>Logical Sentences</i>	63%	Average
	<i>Sentence Combining</i>	16%	Below Ave.
	<i>Contextual Conventions</i>	63%	Average
	<i>Story Composition</i>	63%	Average
TOWL-IV Composite Scores:		PERCENTILE RANK / COMPOSITE INDEX	DESCRIPTION
	<i>Contrived Writing:</i>	58% / Comp. Index: 103	Average
	<i>Spontaneous Writing:</i>	73% / Comp. Index: 109	Average
	<i>Overall Writing:</i>	63% Comp. Index: 105	Average

Self-reported Scores: Prior to engaging in the writing task, the participant rated her level of self-efficacy beliefs for writing, level of writing apprehension, and level of prospective feeling of difficulty as follows:

Self-report scale for Self Efficacy for Writing. Participant #14 scored a 58.6, on a 100 point scale (from 0 *no chance* to 100 *completely certain*); indicating that she had an average level of confidence in her ability to perform each of the 10 writing skills required for effective writing.

Self-report scale for Writing Apprehension. Participant #14 scored a 3.6 indicating an average level of apprehension toward writing; with 6 indicating the highest level of apprehension.

Prospective Feeling of Difficulty Self Report measure. In response to the question “How much difficulty do you think you will have with this composing task?” Participant #14 indicated that she expected to feel *some* difficulty; ranking her response as level 3, on a 4 point scale from level 1; *none at all*, to level 4; *much*.

Participant #14 - Average group: Entrance Interview. During the Entrance Interview, Participant #14 indicated that she did know some writing strategies: “Well, at my school, um, my writing teacher... she usually has like, this sheet, and it has the beginning, middle and the end...And, um, so when you’re writing, you’re not just like, going... do it as you go... you have an idea of... a plan of what you’re going to write.” She also indicated that the one she described was her favorite strategy to use.

Participant #14 - Average group: Composing Task Profile. During each self-regulatory phase of the composing task, the Forethought phase, Performance phase and Self-Reflection phase, the participant responded to micro-analytic measures that tapped self-efficacy beliefs (SE), interest (INT) and feeling of difficulty FOD; *See Figure 9 below*).

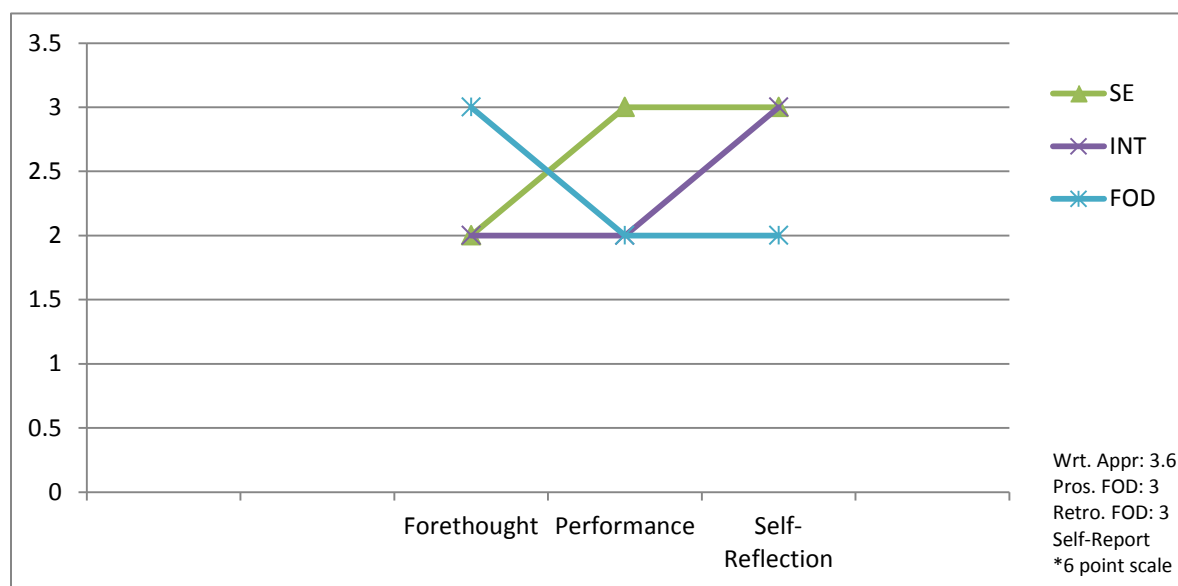


Figure 9. Participant #14: Profile Graph: Micro-analytic measures: 5 point scale
 Note: Self-Report: Wrt. Appr. = Writing Apprehension; FOD = Feeling of Difficulty.

Participant #14 demonstrated a profile (i.e., as in Figure 9 above), in which levels of feelings of difficulty began at level 3; *some difficulty* and then dropped to level 2; *a little difficult*, for the remainder of the writing task. At the Forethought Phase her levels of self-efficacy and levels of interest were both at level 2; *a little sure* and *a little interesting*. However, as her *feelings of difficulty* dropped in the Performance Phase, both self-efficacy beliefs and levels of interest gradually rose from level 2 to level 3; *somewhat sure* and *somewhat interesting*.

Forethought Phase Composing - Average group: Participant #14. Participant #14 indicated that both her Prospective feelings of difficulty and micro-analytic feelings of difficulty were at level 3; *some difficulty* during the Forethought phase of the composing task. Her level of writing apprehension was somewhat higher, at level 4 on a 6 point scale. Her levels of interest and self-efficacy beliefs started at the same level: 2; *a little interesting*; *a little sure*, and then gradually rose as feelings of difficulty dropped during the remainder of the task.

Evidence from the Exit interview indicated that she felt difficulty during composing when “Like, um, trying to make it go into... like, transition... to a different setting in the story...” She also indicated that she was a “little bit nervous” about writing the story. She also indicated that at first, she felt that her story was not very interesting, and she doubted her ability to be able to finish it: “I... at first ... I probably already knew I probably wasn’t going to finish the story.” However, she responded proactively to such feelings of difficulty and demonstrated that she was “just gonna try as hard as I can..and just try to finish it...But I did think I could, like, make it interesting...at least the part that I wrote”; a statement that reflects her ability to effectively self-regulate by exerting more effort to intentionally increase interest; the results of which are demonstrated by the increase in levels interest and self-efficacy illustrated by her Profile chart.

Participant #14 did use strategies to plan by first selecting a title for her story, and then imagining the characters and brainstorming the plot line. During planning she decided to change the plot-line completely, however, by starting over. Evidence from the *Off Task Behaviors* measure indicated that she had only 2 expressions of frustration during the Planning Phase, in which she said “I’m gonna start this over” and later sighed.

Performance Phase Composing: Participant #14 - Average group. During the Performance Phase of composing Participant #14 demonstrated a drop in feelings of difficulty and an increase in both levels of self-efficacy beliefs and interest: self-efficacy rose to level 3; *somewhat sure*, and interest gradually rose to level 3; *somewhat interesting*, as well.

Evidence from the think aloud transcript indicated that she had some initial confusion about how to begin the story: “Wait. I’m trying to figure out what...how it will sound at the beginning...” However, in response she exerted more effort and used the strategy of referring

back to the title of the story that she had written down at the Planning phase, and the name of the main character: “O.K. I think I’m gonna start this out... so ...One day...I think I’m gonna name the boy Andy...So, one day Andy and his sister came back from school...” As she became more involved in the story, she added dialogue, and seemed to become more engaged in the story as the action began to build. She used self-questioning techniques to revise while in the process of composing, for example: “When she gets home there’s a tree on fire...Ughhh....No O.K.... How’s that tree going to get on there?”

Her responses to the Exit Interview also indicated that she felt difficulty at the transition points in the story: “Like, um, trying to make it go into... like, transition... to a different setting in the story...” She also indicated that her level of interest changed because she intentionally tried to make the story more interesting: “At first, when I said, like the Mom coming back from work, I didn’t think that that was very interesting, so I wanted to change it, to the boy like, looking outside, and you can, and as he’s looking outside, and it’s like getting darker, and it’s starting to rain really hard, and stuff like that... um... I think it started to get more interesting.” Her level of self-efficacy beliefs also rose when she realized that her strategies had been helpful and she could redo parts of her story, and might be able to finish it in time: “I got a little bit excited, because, I was like, Yay, I get to finish it...” The *Off Task Behaviors* measure showed that she had four instances of pausing to sigh as she realized she may need to change the plot line, as well as two longer pauses to question aloud some of the parts she did not like.

Self-Reflection Phase Composing: Participant #14 - Average group. During the Self-Reflection phase of composing, her feelings of difficulty remained at level 2; *a little difficulty*, but levels of interest increased to level 3; *somewhat interesting*, and self-efficacy beliefs also remained at level 3; *somewhat sure*.

Evidence from the think aloud transcript indicates that Participant #14 spent some time revising and editing her story, by rereading and questioning whether any sentences needed to be revised and whether or not they were correctly punctuated, and whether proper nouns were capitalized: “So... that comma’s in the right place here...period... O.K... I think I capitalized Mom...” The *Off Task Behaviors* measure indicated no interruptions in task processing during the Self-Reflection phase. During the Exit Interview she also indicated that the strategy that helped her the most was writing out the outline: “That really did help me...But, I didn’t get to finish it.”

Retrospective Feeling of Difficulty: Participant #14 - Average group. In her response to the Retrospective Feeling of Difficulty self-report measure, she indicated that she felt *some difficulty*; level 3 during the composing task.

Table 14

Screening/Exit Subtest Scores TOWL-IV: Participant # 14

TOWL-IV subtests	Subtest	SCORE	Subtest	SCORE	Effort	SEM
<i>Contextual Conventions</i>	Form A: S.S.	11 (63%ile)	Form B: S.S.	14 (91%ile)	+ 3 = pos. change (2 pnt)	1
<i>Story Composition</i>	Form A: S.S.	11 (63%ile)	Form B: S.S.	12 (75%ile)	+1= pos. change (0 pnt)	2

Note: SEM is Standard Error of Measurement

Although her responses to the interviews and the think aloud indicated relatively low levels of interest, and moderate self-efficacy, Participant #14 performed equivalently on the post Story Composition subtest, with an increase of 1 point; measured as a 0 point increase beyond SEM, and her performance increased by 3 points on the Contextual Conventions subtest; measured as a 2 point overall increase in level of effort.

Summary Participant #14 - Average group. Participant #14 scored in the Average – Above Average range on the TOWL-IV Screening and Exit subtests for Contextual Conventions and Story Composition. She initially experienced some writing apprehension, at level 4 on a 6 point scale, and some feelings of difficulty, at level 3; *some*, that were higher than her initial levels of interest and self-efficacy: both at level 2; *a little interest; a little sure*. However, in response to her feelings of difficulty, she proactively exerted more effort and implemented strategies when facing challenges. She stated in the interview that she purposefully decided to try to make her story more interesting, and she succeeded; as she exerted additional effort and made changes to the plot of her story, she became increasingly interested in her writing and her self-efficacy beliefs increased, while feelings of difficulty decreased at the Performance Phase. By the Self-Regulation phase, her levels of interest rose to match her self-efficacy, while her feelings of difficulty remained lower. She was often concerned that she would not be able to finish the story, however, and she also acknowledged that she felt the most difficulty at transition points in composing. Her increased level of effort was reflected in her final subtest scores, which indicated an overall 2 point increase in her scores.

Summary of Cross-Case Trends: Average Performing Group (#6, #8, #14)

The Average performing group was composed of two white males, both of whom were generally unfamiliar with composing strategies, and one Hispanic female, who was somewhat familiar with composing strategies. Of these three students, two of them implemented some strategies throughout the composing task, while the third used minimal strategies. For instance participant #8 created a plan with characters and a plot line, to which he referred during composing, and he also used some self-questioning, revising and editing strategies. Participant #14 also created a plan, and then revised it before composing. She used self-evaluation and self-

questioning strategies during composing, and revision and editing strategies during the revision phase. However, Participant #6 used very few strategies during composing. Scores on self-report measures of Self-Efficacy for these students ranged from level 1; *not at all sure*, to level 3; *somewhat sure*, with self-report scores on Writing Apprehension ranging from level 3.6 – 6; on a 6 point scale. For all three students self-report measures of Prospective Feelings of Difficulty were at level 3; *some*.

For all three students in the Average performing group, levels of interest were lower than levels of self-efficacy at most phases of the composing task; with levels equal at one phase for two students. For all three of the students, feelings of difficulty were higher than interest and self-efficacy, at the Forethought Phase of the composing task; and for two students, feelings of difficulty remained higher for two or more phases. However, in response to increased feelings of difficulty, one student was able to effectively self-regulate negative affect by proactively increasing her interest in composing by actively making changes to make her story more interesting; this in turn raised her self-efficacy and lowered her feelings of difficulty.

Off Task Behaviors measures for the three students ranged from 8 – 12; with the median at 9, and scores for Effort ranged from 0 = no increase to +3 = a 3 point increase between Screening and Exit subtest scores in Story Composition and Contextual Conventions. All three of these students indicated that they were aware of feelings of difficulty either at the initial phase of composing or at other transition points throughout the composing task.

Descriptive Profiles for Low-Performing Group: Participants #10, #11, #13

Descriptive Profile Participant #10: Low Performing Group.

Demographic Summary. Participant #10 is an 11 year old, Black/American Indian male, in the 6th grade attending a Public school, who has been diagnosed with Dyslexia and ADHD. He

does have an IEP and/or 504 plan in place in the area of Language Arts. Socio-economic status is indicated by his mother's attained education level: Undergraduate degree. He does not know his annual household income.

Participant #10 - High group Screening. The test results at the Screening Phase for Participant #10 are listed in Table 15 below:

Table 15

Screening Summary: Participant #10

SREENING SUMMARY #10	SUBTESTS	PERCENTILE RANK	DESCRIPTION
WISC-IV	Vocabulary subtest:	75%	Average
WISC-IV	Matrix Reasoning	50%	Average
TOWL-IV Subtests: FORM A		PERCENTILE RANK	DESCRIPTION
	<i>Vocabulary</i>	9%	Below Average
	<i>Spelling</i>	2%	Low
	<i>Punctuation</i>	9%	Below Ave.
	<i>Logical Sentences</i>	50%	Average
	<i>Sentence Combining</i>	16%	Below Ave.
	<i>Contextual Conventions</i>	9%	Below Ave.
	<i>Story Composition</i>	37%	Average
TOWL-IV Composite Scores:		PERCENTILE RANK / COMPOSITE INDEX	DESCRIPTION
	<i>Contrived Writing:</i>	10% / Comp. Index: 81	Below Average
	<i>Spontaneous Writing:</i>	19% / Comp. Index: 87	Below Average
	<i>Overall Writing:</i>	10% Comp. Index: 81	Below Average

Self-reported Scores. Prior to engaging in the writing task, the participant rated his level of self-efficacy beliefs for writing, level of writing apprehension, and level of prospective feeling of difficulty as follows:

Self-report scale for Self Efficacy for Writing. Participant #10 scored a 7.8, on a 100 point scale (from 0 *no chance* to 100 *completely certain*); indicating that he had a very low level of confidence in his ability to perform each of the 10 writing skills required for effective writing

Self-report scale for Writing Apprehension. Participant #10 scored a 3.6, indicating an average level of apprehension toward writing; with 6 indicating the highest level of apprehension.

Prospective Feeling of Difficulty Self Report measure. In response to the question “How much difficulty do you think you will have with this composing task?” Participant #10 indicated that he expected to feel *much* difficulty; ranking his response as level 4, on a 4 point scale from level 1; *none at all* to level 4; *much*.

Participant #10 - Low group: Entrance Interview. During the Entrance Interview, Participant #10 indicated that he did not really know or use any writing strategies, and the only strategies he was able to think of were “using similes” and “Going back to the text”. He indicated that he did not have any favorite writing strategies, and was unfamiliar with any other *strategies*.

Participant # 10 - Low group: Composing Task Profile. During each self-regulatory phase of the composing task; the Forethought phase, Performance phase and Self-Reflection phase, the participant responded to micro-analytic measures that tapped self-efficacy beliefs (SE), interest (INT) and feeling of difficulty (FOD: *See Figure 10 below*).

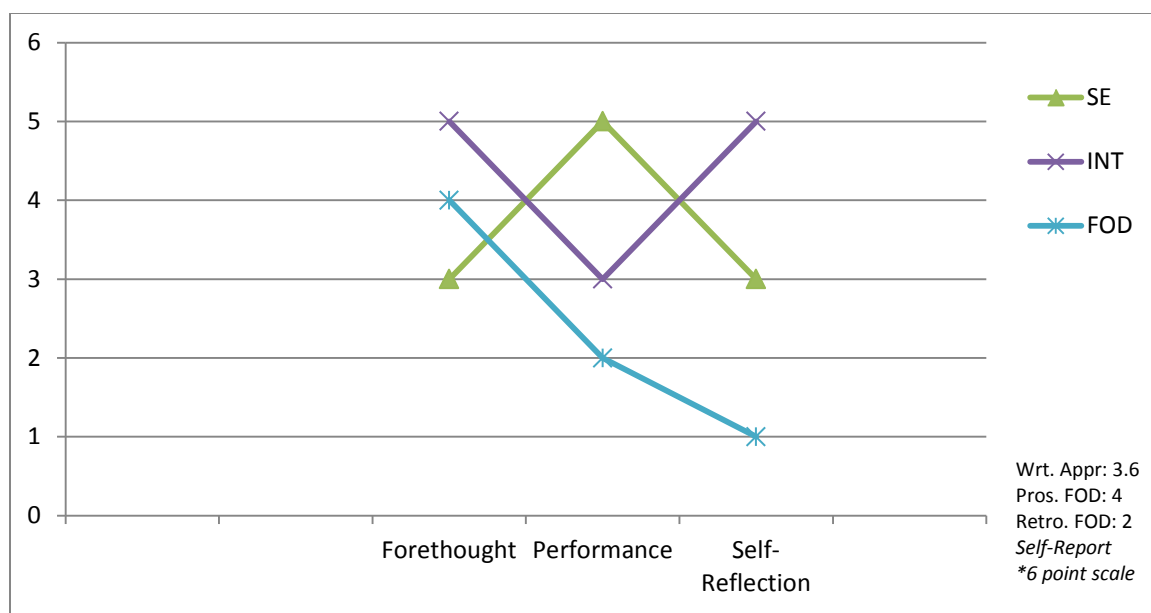


Figure 10. Participant #10: Profile Graph: Micro-analytic measures: 5 point scale
Note: Self-Report: Wrt. Appr. = Writing Apprehension; FOD = Feeling of Difficulty.

Participant #10 demonstrated a unique profile (as in Figure 10 above) in which levels of feelings of difficulty began at level 4; *moderate difficulty*, which was higher than his self-efficacy beliefs, at level 3; *somewhat sure*, but lower than his level of interest, which was extremely high, at level 5; *very interesting*. In this case, his levels of difficulty gradually dropped dramatically during the course of the composing task, from level 4; *moderate difficulty* down to level 1; *no feeling of difficulty*. Although his levels of interest also fell at the Performance Phase, to level 3; *somewhat interesting*, his level of self-efficacy beliefs rose during the same phase, to level 5; *very sure*. However, at the Self-Reflection phase his self-efficacy beliefs fell back to level 3; *somewhat sure*, and his interest rose dramatically back to level 5; *very interesting*.

Evidence from the Exit interview helped to explain the unusual profile that this struggling writer demonstrated. When asked if he felt apprehensive or anxious about writing he indicated that he did, however he explained how his feelings had changed: “Well, I used to not like writing, because it was so hard, but, um, then I learned different stuff, and...and it got easier, and

I really enjoy doing it.” This student demonstrated increased effort and strategy use in response to feelings of difficulty, and his responses also indicated that he found the strategies that I introduced to be very helpful; as he recognized that they were effective, he felt that the writing task became easier. He also stated that he became more interested in the story as he was composing it, and he became more confident in his ability to write a good story.

Forethought Phase Composing: Participant #10 - Low group. Participant #10 demonstrated feelings of difficulty at level 4; *moderate difficulty* during the Forethought Phase, which was higher than his self-efficacy beliefs, at level 3 *somewhat sure*, but lower than his level of interest, which was extremely high, at level 5 *very interesting*. Evidence from the transcript and his written plan at this phase indicate that he did not use any strategies of brainstorming or outlining, but he just began narrating and writing his story. The transcript indicated that he repeated himself frequently at this stage and worked slowly, while focused on trying to spell and write out his ideas.

Evidence from the Exit Interview shows that he also explained how his level of confidence changed during the writing process. At first he indicated that “I was really confident”, but then “it changed”...”It was like the level of interest I had... um...like ...I...it ...like, it was challenging ... at first, and then I got better at it...and it...and I was more anxious to write it out, and it was easier to write, and it was funner.”

Performance Phase Composing: Participant #10 - Low group. During the Performance Phase of composing Participant #10 demonstrated a drop in his feeling of difficulty; from level 4; *moderate difficulty* to level 2; *a little difficulty*, while his level of self-efficacy rose dramatically from level 3; *somewhat sure* to level 5; *very sure*. However, as his self-efficacy rose, his interest fell from level 5; *very interesting*, to level 3; *somewhat interesting*. His

responses to the Exit Interview indicated that his level of confidence changed because the task was at first challenging, but then he felt that he became better at it, and that it was easier and more fun; which is also demonstrated in the marked decrease of his feelings of difficulty at this phase.

He also indicated that he was very interested in writing the story “I was really interested in it, ‘cuz... there was more stuff to write about...” He also explained that his level of interest changed as he worked on the story “I wasn’t really interested in it at the beginning, but then when I started to write about it, it got more and more interesting, every time.”

The *Off Task Behaviors* measure showed that he had no instances of off task behavior, but the researcher had noted that he instead worked hard and stayed focused, even though the writing process appeared to be slow and labored for him.

Self-Reflection Phase Composing: Participant #10 - Low group. During the Self-Reflection phase of composing, his *feelings of difficulty* dropped further, to level 1; *no feeling of difficulty*, and his level of interest increased dramatically, back to level 5; *very interesting*, though his levels of self-efficacy fell back to level 3; *somewhat sure*.

Evidence from the think-aloud transcript indicates that Participant #10 did not spend much time revising his story, but he did read it aloud and checked spelling. Evidence from the Exit Interview transcript indicated that he did use some of the strategies introduced by the researcher “I used COPS and TOWER. I think both of them helped me very well during this task...of knowing what to do, when to do it, and what to put and where to put it....I think that I will, like, continue to use it, um... the more I write...and, the uh... more I use it, the better I get when I use it.” He also stated that he felt only a little difficulty during the task.

The *Off Task Behaviors* measure indicated no off-task behaviors, only a pause to ask how much time he had left.

Retrospective Feeling of Difficulty: Participant #10 - Low group. The Retrospective Self-Report measure completed after the task was finished indicated that he had felt only *a little difficulty*; level 2, on the composing task.

Table 16

Screening/Exit Subtest Scores TOWL-IV: Participant # 10

TOWL-IV subtests	Subtest	SCORE	Subtest	SCORE	Effort	SEM
<i>Contextual Conventions</i>	Form A: S.S.	6 (9%ile)	Form B: S.S.	7 (16%ile)	+ 1 = pos. change (0 pnt)	1
<i>Story Composition</i>	Form A: S.S.	9 (37%ile)	Form B: S.S.	11 (63%ile)	+2= pos. change (0 pnt)	2

Note: SEM is Standard Error of Measurement

Participant #10 performed slightly better on the Exit Story Composition subtest, with an increase of 2 points, measured as 0 point increase beyond the Standard Error of Measurement. His performance also increased by 1 point on the Contextual Conventions subtest, measured as a 0 point increase beyond SEM; indicating an equivalent level of performance.

Summary: Participant #10 - Low group. Participant #10 scored in the Below Average - Average range on the TOWL-IV Screening and Exit subtests for Contextual Conventions and Story Composition. Although he initially experienced some writing apprehension, at level 4 on a 6 point scale, and some feelings of difficulty, at level 4; *moderate difficulty*, his feelings of difficulty dropped steadily for the remainder of the composing task to level 1; *no difficulty* at the Self-Reflection phase. His level of interest was very high, at level 5; *very interesting* at the Forethought Phase, and although it dropped at the Performance Phase, it rose again to level 5; *very interesting* by the Self-Reflection phase. His self-efficacy beliefs rose in contrast, at the

Performance phase, as his interest fell, which appears unusual, however he mentioned that his interest fell when the task became more challenging, but then it increased again when he realized that he was getting better at it.

Although this student struggled with writing, he was able to effectively self-regulate his negative affect: as he exerted additional effort and tried to implement strategies he became increasingly interested in his writing and his feelings of difficulty decreased markedly. He did state that writing used to be hard for him, but he enjoyed writing this story. His Exit subtest scores indicate an overall positive change, though his scores did not increase beyond the Standard Error of Measure; indicating an equivalent level of effort and performance on the writing tasks.

Descriptive Profile Participant #11: Low Performing Group.

Demographic Summary. Participant #11 is a 13 year old, Caucasian female, in the 8th grade in a Home school environment who has been diagnosed with a Specific Learning Disability in Reading or Writing, and Dyslexia, as well as with ADHD. She does not have an IEP or 504 plan in place in the area of Language Arts because she has been home-schooled. Socio-economic status is indicated by both her mothers' attained education level: both mothers hold graduate degrees. She does not have any idea of her family's annual household income.

Participant #11 Screening. The test results at the Screening Phase for Participant #11 listed in Table 17 below:

Table 17

Screening Summary: Participant #11

SREENING SUMMARY #11	SUBTESTS	PERCENTILE RANK	DESCRIPTION
WISC-IV	Vocabulary subtest:	: 91%	Above Average
WISC-IV	Matrix Reasoning	50%	Average
TOWL-IV Subtests: FORM A		PERCENTILE RANK	DESCRIPTION
	<i>Vocabulary</i>	37%	Average
	<i>Spelling</i>	16%	Below Ave.
	<i>Punctuation</i>	37%	Average
	<i>Logical Sentences</i>	75%	Average
	<i>Sentence Combining</i>	91%	Above Ave.
	<i>Contextual Conventions</i>	50%	Average
	<i>Story Composition</i>	75%	Average
TOWL-IV Composite Scores:		PERCENTILE RANK / COMPOSITE INDEX	DESCRIPTION
	<i>Contrived Writing:</i>	65% / Comp. Index: 106	Average
	<i>Spontaneous Writing:</i>	73% / Comp. Index: 109	Average
	<i>Overall Writing:</i>	73% Comp. Index: 107	Average

Self-reported Scores. Prior to engaging in the writing task, the participant rated her level of self-efficacy beliefs for writing, level of writing apprehension, and level of prospective feeling of difficulty as follows:

Self-report scale for Self Efficacy for Writing. Participant #11 scored a 19.8, on a 100 point scale (from 0 *no chance* to 100 *completely certain*); indicating that she had a fairly low level of confidence in her ability to perform each of the 10 writing skills required for effective writing.

Self-report scale for Writing Apprehension. Participant #11 scored a 4.5, indicating a somewhat heightened level of apprehension toward writing (with 6 indicating the highest level of apprehension).

Prospective Feeling of Difficulty Self Report measure. In response to the question “How much difficulty do you think you will have with this composing task?” Participant #11 indicated that she expected to feel *some* difficulty; ranking her response as level 3 (on a 4 point scale *from #1 none at all to #4 much*).

Participant #11 - Low group: Entrance Interview.

In response to the questions in the Entrance Interview, Participant #11 indicated that she was familiar with the following writing strategies: creating an outline; listing the main points; making a list; organizing ideas; writing a draft and revising.

Participant #11 - Low group: Composing Task Profile.

During each self-regulatory phase of the composing task, the Forethought phase, Performance phase and Self-Reflection phase, the participant responded to micro-analytic measures that tapped self-efficacy beliefs (SE), interest (INT) and feeling of difficulty (FOD; *See Figure 11 below*).

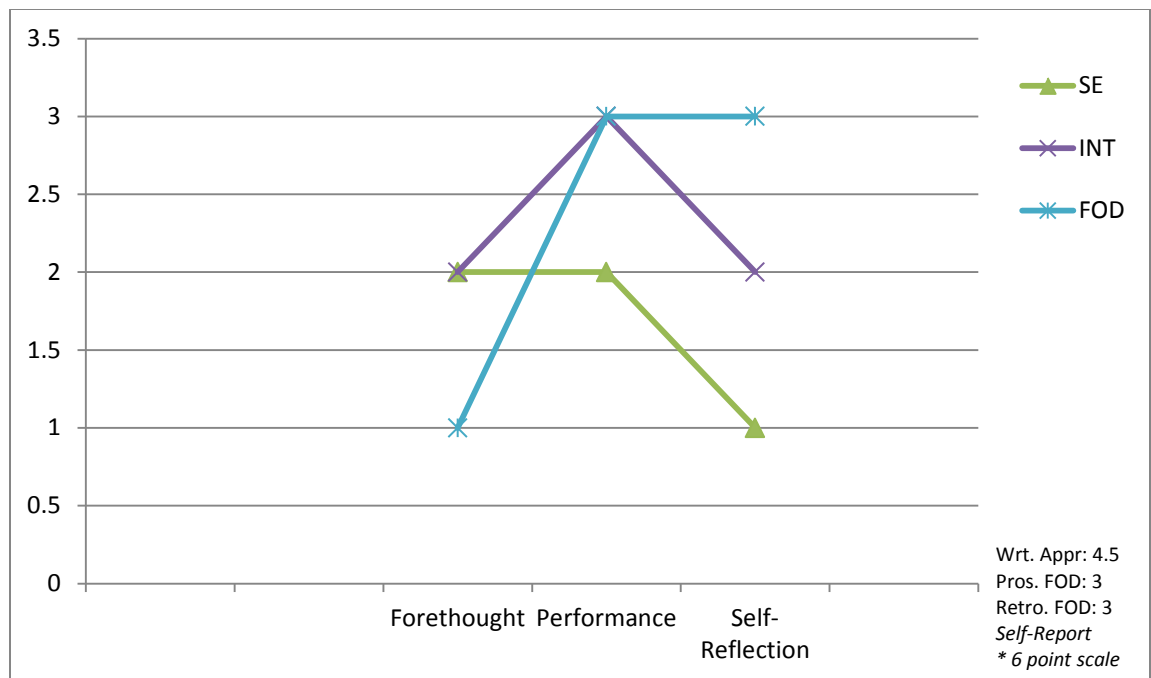


Figure 11. Participant #11: Profile Graph: Micro-analytic measures: 5 point scale
 Note: Self-Report: Wrt. Appr. = Writing Apprehension; FOD = Feeling of Difficulty.

Participant #11 demonstrated a profile (i.e., as in Figure 11 above) in which feelings of difficulty increased from the Forethought Phase to the Performance Phase; from level 1; *no feeling of difficulty*, to level 3; *some difficulty*. Although levels of interest also increased initially, as feelings of difficulty increased and remained constant, both levels of self-efficacy beliefs and levels of interest decreased in tandem. Both self-efficacy beliefs and interest were recorded at level 2; *a little sure* and *a little interesting*, during the Forethought Phase of the composing task, while self-efficacy beliefs remained constant and interest rose to level 3; *somewhat interesting*, during the Performance Phase. However, as feelings of difficulty remained constant during Self-Reflection, both levels of interest and self-efficacy dropped: interest to level 2; *a little interesting*, and self-efficacy to level 1; *not at all sure*.

Although she indicated her level of writing apprehension at level 4.5, evidence from the Exit Interview indicated that she was not aware of feeling anxious or apprehensive during the

composing task, though she said that she usually feels anxious or apprehensive on writing assignments that will be graded or evaluated. She stated that she would feel anxious or nervous if the paper were going to be graded on spelling, because she felt that she was very bad at spelling. And, although she did not verbalize her level of writing apprehension in the exit interview, her responses on the self-report measure indicated a moderately high level of apprehension.

Initially she was not very interested in the task either: “I think I got more interested over time. It wasn’t very...it’s not an interesting subject originally for me, because uh...I don’t like to write fictional stories as much as I like to write journal entries... or something like that.” She did however, realize that her level of interest changed as she was working on the story: “Yes. I think it became more interesting because...uh...I got to sort of make it my own a little bit more, and put exciting parts in there.” When asked how confident she was in her ability to write a good story, she replied: “I think I’m confident about the story line, and less confident about grammar and spelling.” Finally, when asked if she felt any difficulty during the composing task she replied: “Yeah. Thinking about how to spell things correctly quickly, but uh...I didn’t have difficulty coming up with the story line.” However she did not have difficulty in planning the story “Nothing with...figuring out what I should write.”

Forethought Phase Composing: Participant #11 - Low group. The profile for Participant #11 demonstrated that she had *no feelings of difficulty* at level 1 initially, during the Forethought Phase of the composing task, and her levels of interest and self-efficacy beliefs were both at level 2: *a little sure; a little interesting* during this phase. Evidence from the transcript at this phase indicates that she did have many ideas for the plot line of the story, and she narrated the story quickly and effectively. She wrote only a few sentences for her plan, however, and did

not make an outline nor a mind map, though she did appear to be brainstorming verbally as she narrated the story.

During the Entrance Interview, Participant #11 indicated that she did know some writing strategies including: “Writing an outline, or an official representation of what you’re gonna do. And, uh, writing down the main points of what you’re writing about. So, um...making a list.” She was also familiar with some of the stages of writing: “Organizing ideas, write a draft.” *Off Task Behaviors* measures indicated only 2 brief pauses during this phase.

Performance Phase Composing: Participant #11 - Low group. During the Performance Phase Participant #11 demonstrated an increase in her feeling of difficulty, from level 1; *no feelings of difficulty* to level 3; *moderate difficulty*. Although her feelings of difficulty increased, she indicated that she responded with strategies to try to make her story more interesting, which resulted in an increase in her level of interest: from level 2; *a little interesting*, to level 3; *somewhat interesting*, while her level of self-efficacy remained constant at level 2; *a little sure*. Evidence from the think aloud transcript indicated that she continued to narrate the story as she wrote it, and revised or changed parts of the plot line as she composed it to make it more interesting: “I think it became more interesting because.. uh.. I got to sort of make it my own a little bit more, and put exciting parts in there.” The *Off Task Behaviors* measure showed that she had no instances of off task behavior during this phase, and she remained focused on the task of writing.

Self-Reflection Phase Composing: Participant #11 - Low group. During the Self-Reflection phase of composing, her feelings of difficulty remained constant at level 2; *a little difficulty*, however both her level of interest and her level of self-efficacy beliefs decreased: interest fell to level 2; *a little interesting* and self-efficacy fell to level 1; *not at all sure*.

Evidence from the think aloud transcript indicates that Participant #11 reread and did try to edit and revise her story at this point. She tried to correct a number of spelling errors and also edited spelling and grammatical errors: “I should change that...and then it will not be a run-on sentence.” Evidence from the Exit Interview transcript indicated that she felt that she was “really, really bad at spelling”, and her awareness of her errors as she tried to edit her spelling mistakes during the revising stage may have had a negative impact on her self-efficacy beliefs. The *Off Task Behaviors* measure indicated a few off-task behaviors at this phase, when she paused as if confused, and finally said “Done” and simply stopped revising or editing before the time had expired.

Retrospective Feeling of Difficulty: Participant #11 - Low group. The measure of Retrospective Feeling of Difficulty indicated that she felt *some difficulty*; level 3 as she worked on composing the story, which was consistent with the micro-analytical measures.

Table 18

Screening/Exit Subtest Scores TOWL-IV: Participant # 11

TOWL-IV subtests	Subtest	SCORE	Subtest	SCORE	Effort	SEM
<i>Contextual Conventions</i>	Form A: S.S.	10 (50%ile)	Form B: S.S.	11 (63%ile)	+ 1 = pos. change (0 pnt)	1
<i>Story Composition</i>	Form A: S.S.	12 (75%ile)	Form B: S.S.	13 (84%ile)	+1= pos. change (0 pnt)	2

Note: SEM is Standard Error of Measurement

Participant #11 performed slightly better on both the Post Story Composition and Contextual Conventions subtests, with an increase of 1 point on each, measured as a 0 point increase beyond the Standard Error of Measurement; indicating an equivalent level of effort.

Summary Participant #11 - Low group. Participant #11 scored in the Below Average – Average range on the TOWL-IV screening subtests: below average in Spelling; 16th percentile rank but at the average level on Screening and Exit subtests for Contextual Conventions and Story Composition. She initially experienced heightened writing apprehension, at level 4.5 on a 6 point scale, and feelings of difficulty at level 3; *somewhat difficult*, at the Performance and Self-Reflection phases. Her level of interest was relatively low, at level 2; *a little interesting*, at the Forethought Phase, and although it rose at the Performance Phase to level 3; *somewhat interesting*, it fell again to level 2 by the Self-Reflection phase. Her self-efficacy beliefs, though initially equal to, at level 2; *a little sure*, and then lower than levels of interest, mirrored the drop in interest, to level 1; *not at all sure* at the Self-Reflection phase, as her feelings of difficulty rose from level 1; *not at all difficult*, to remain consistent at level 3; *somewhat difficult* throughout the Performance and Self-Reflection phases.

As she exerted additional effort and tried to implement strategies she became increasingly interested in her writing, but as she evaluated and revised her story at the Self-Reflection phase her level of interest and self-efficacy fell, as she realized and tried to correct her many errors in spelling and grammar.

Descriptive Profile Participant # 13: Low Performing Group.

Demographic Summary. Participant #13 is a 14 year old, Black/American Indian male, in the 8th grade in a Public school, who has been diagnosed with ADHD. He does have a 504 plan in place, but did not indicate for which subjects. Socio-economic status is indicated by both his mother and his father's attained education level: mother holds an undergraduate degree, and his father holds a High School diploma. He does not have any idea of his family's annual household income.

Participant #13 - Low group: Screening. The test results at the Screening Phase for Participant #13 are listed in Table 19 below:

Table 19

Screening Summary: Participant #13

SREENING SUMMARY #13	SUBTESTS	PERCENTILE RANK	DESCRIPTION
WISC-IV	Vocabulary subtest:	50%	Average
WISC-IV	Matrix Reasoning	37%	Average
TOWL-IV Subtests: FORM A		PERCENTILE RANK	DESCRIPTION
	<i>Vocabulary</i>	37%	Average
	<i>Spelling</i>	5%	Low
	<i>Punctuation</i>	16%	Below Ave.
	<i>Logical Sentences</i>	50%	Average
	<i>Sentence Combining</i>	9%	Low
	<i>Contextual Conventions</i>	16%	Below Ave.
	<i>Story Composition</i>	25%	Average
TOWL-IV Composite Scores:		PERCENTILE RANK / OMPOSITE INDEX	DESCRIPTION
	<i>Contrived Writing:</i>	18% / Comp. Index: 86	Below Average
	<i>Spontaneous Writing:</i>	19% / Comp. Index: 87	Below Average
	<i>Overall Writing:</i>	16% / Comp. Index: 85	Below Average

Self-reported Scores. Prior to engaging in the writing task, the participant rated his level of self-efficacy beliefs for writing, level of writing apprehension, and level of prospective feeling of difficulty as follows:

Self-report scale for Self Efficacy for Writing. Participant #13 scored a 92, on a 100 point scale, from 0 *no chance* to 100 *completely certain*; indicating that he had a very high level of confidence in his ability to perform each of the 10 writing skills required for effective writing.

Self-report scale for Writing Apprehension. Participant #13 scored a 3, indicating an average level of apprehension toward writing, with 6 indicating the highest level of apprehension.

Prospective Feeling of Difficulty Self Report measure. In response to the question “How much difficulty do you think you will have with this composing task?” Participant #13 indicated that he expected to feel no difficulty: *none at all*; ranking his response as level 1, on a 4 *point scale from level 1; none at all to level 4; much.*

Participant #13 - Low group: Entrance Interview. In response to the questions on the Entrance Interview, Participant #13 indicated that he did not know writing strategies, nor what was meant by writing strategies. However, after being given some examples, he volunteered the following strategies: “Well, our teacher used to tell us...he told me, like you need like...he told me to write, like, fast, like while I’m taking notes. He told me like, to like, put a line, and like, put the important notes on one side, and the other notes that’re not like, that important, on the other side.” “And, he told me, like, put stuff when you study on like, 3 by 5 study cards...That’s it though.” When asked if he had any favorite writing strategies he responded: “Write real fast.”

Participant #13 - Low group: Composing Task Profile. During each self-regulatory phase of the composing task, the Forethought phase, Performance phase and Self-Reflection

phase, the participant responded to micro-analytic measures that tapped self-efficacy beliefs (SE), interest (INT) and feeling of difficulty (FOD; *See Figure 12 below*).

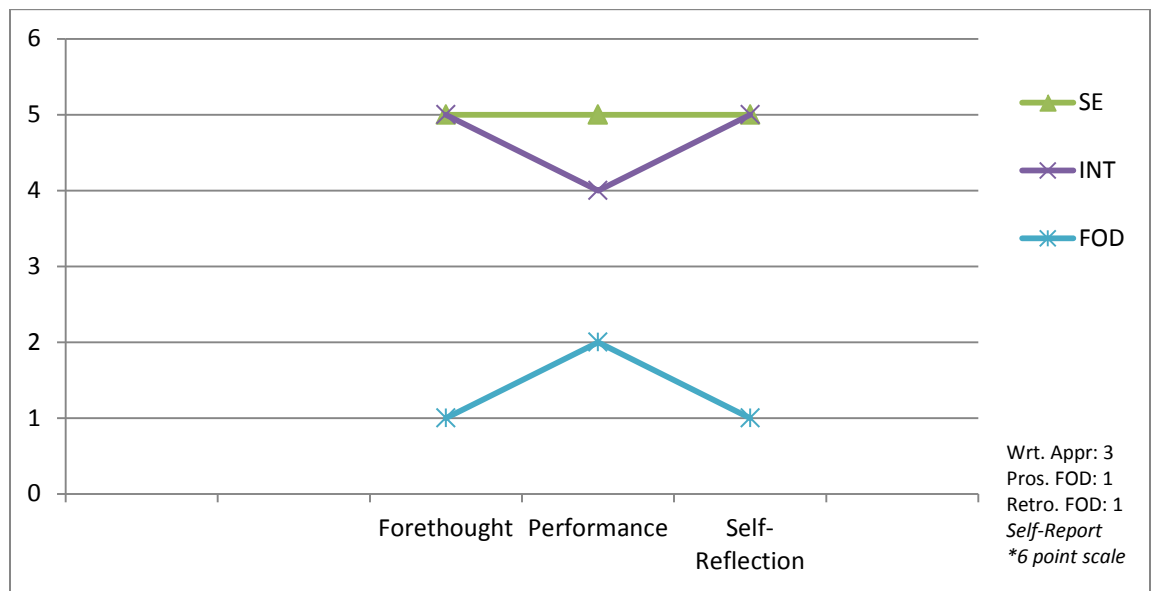


Figure 12. Participant #13: Profile Graph: Micro-analytic measures: 5 point scale
Note: Self-Report: Wrt. Appr. = Writing Apprehension; FOD = Feeling of Difficulty.

Participant #13 demonstrated an unusual profile (as in Figure 12 above), in which he reported an average level of apprehension toward writing; at level 3 on a 6 point scale, but his feelings of difficulty were reported as quite low: level 1; *no feeling of difficult*, to level 2; *a little difficult*, and both his self-efficacy beliefs and interest were initially very high: self-efficacy at level 5; *very sure* and interest at level 5; *very interesting*. However, when feelings of difficulty rose by one point during the Performance Phase, his level of interest decreased at the same time, though self-efficacy beliefs remained constant. The very high levels of self-efficacy beliefs and interest, and very low feelings of difficulty during the composing task appear somewhat unusual for a student whose scores on the TOWL-IV indicate below average performance in many aspects of writing.

However, evidence from the transcript and Exit Interviews help to illuminate the student's perspective, and explain the unusual profile. For instance, evidence from the Exit Interview demonstrated that he loved to tell stories. When asked how interested he was in writing the story, he replied: "I was interested in my writing! 'Cuz, like, I love writing stories...like, I love tellin' stories, and stuff like that... Yeah... like around the campfire, or stuff like that..." and he also indicated that his level of interest did not change much during the task. When asked how confident he was in his ability to write a good story, he replied: "I was confident! I was confident..." He also indicated that his level of confidence did not change during the task.

When asked if he felt that the task was difficult, he replied "No. Not that much." However, he did recognize that the feeling of difficulty changed a little bit: "Oh. It would change, in like, ways like, difficulty changed, because, you know, like, one on one you're talking about what people... and the difficulty would change..."

Forethought Phase Composing: Participant #13 - Low group. The profile for Participant #13 demonstrated that he had *no feelings of difficulty*, at level 1 initially, during the Forethought Phase of the composing task, and his levels of interest and self-efficacy beliefs were both at level 5; *very sure* and *very interesting* during this phase. Evidence from the transcript at this phase indicates that he did have many ideas for the plot line of the story, and he began "planning" by describing what was happening in the picture, and began narrating the story very quickly and with enthusiasm. However, he wrote very little for his plan, other than making some notes of names of 4 characters and a dog. However, during the planning phase he stated: "so story's good" and continued his narration. The measure for *Off Task Behaviors* indicated four exclamations of frustration "Shoot! Dang!" and time spent playing with his pencil.

Performance Phase Composing: Participant #13 - Low group. During the Performance Phase of composing Participant #13 demonstrated a slight increase in his feeling of difficulty: from level 1; *no feelings of difficulty* to level 2; *a little difficulty*. At the same time, his level of interest decreased from level 5; *very interesting*, to level 4; *interesting*, while his level of self-efficacy remained constant at level 5; *very sure*. Evidence from the think aloud transcript indicated that he continued to narrate the story very rapidly, as he wrote it, and would self-question or insert jokes, and often repeated himself. He talked very quickly, and filled the time with non-stop narrative. However he actually wrote very little down on paper, and his entire story was only one paragraph long, with numerous spelling, punctuation and grammatical errors. He did not acknowledge his lack of ability to actually write the story that he was narrating effectively, and indicated that he felt no difficulty: “Um Difficult? It’s not that difficult for me, ‘cuz like, I’m just natural like that... so it go like...everybody got like a little bit of difficulty with everything’ ... but it’s like, it’s like, I know how to write stories. I can tell stories, and stuff...”

By his responses to the interviews, it was clear that this student loved to tell stories, was highly interested in telling stories and felt very confident of his ability to tell good stories. However, he appeared to be confusing the “telling” of a story with the process of “writing” a story, because he wrote very little of the story that he narrated. And, from his responses to the Entrance Interview, it was clear that he had not received much instruction in composing strategies, because he did not even recognize writing strategies when examples were given to him. However, he did incorporate a type of strategy by revising his “telling” of the narrative periodically.

The *Off Task Behaviors* measure showed that he had numerous instances of perseveration approx. 17, repeating the same words or ideas, or talking at random to fill up time, in addition to 8 expressions of frustration, such as “Shoot!” or “Ain’t nothing else to write about.” Evidence from the think aloud transcript also indicates that he would insert comments to himself during his narration, which made it sound as if he was trying to convince himself that he could create good stories, such as: “Yeah. Oh, yeah... I know how to tell stories... like, tell stories around the camp fire, like that...”

Self-Reflection Phase Composing: Participant #13 - Low group. During the Self-Reflection phase of composing, his feelings of difficulty fell back to level 1; *no feeling of difficulty*, and his level of interest rose to level 5; *very interesting*, while his self-efficacy beliefs remained constant at level 5 *very sure*.

Evidence from the think aloud transcript indicates that Participant #13 did not do anything to try to edit or revise his story during this phase. When instructed that he had 3 minutes to edit and revise his story, he asked “Did you say, revise?” But instead of focusing on his story, he simply started to sing “It’s a Hard Knock Life...” and began talking about completely unrelated things until the timer went off. The *Off Task Behaviors* measure indicated a number of off-task behaviors at this phase: total 10, including a few expressions of frustration “Dang!” I noted on the measure that his persistent perseveration (i.e., multiple repetitions of the same thoughts or words) appeared to be interfering with his ability to concentrate or focus. And, even though he did not do any revising or editing, he said “So, anyways, like, um...revising the story is easy, I’m almost done.” Evidence from the Exit Interview indicated that he did feel some difficulty, especially during transition points: “Difficulty would change, because they’re

doing different things, and you've got to write about what they're doing...So, that's how, that's how it would change, like that..."

Retrospective Feeling of Difficulty: Participant #13 - Low group. Interestingly, although this student did acknowledge during the Exit Interview that he experienced some feelings of difficulty, he rated his level of difficulty at level 1; *none at all*, on the self-report measure of retrospective feeling of difficulty; which was also inconsistent with his responses on the micro-analytic measures where he indicated level 2; *a little difficulty* at the Performance Phase.

Table 20

Screening/Exit Subtest Scores TOWL-IV: Participant # 13

TOWL-IV subtests	Subtest	SCORE	Subtest	SCORE	Effort	SEM
<i>Contextual Conventions</i>	Form A: S.S.	7 (16%ile)	Form B: S.S.	5 (5%ile)	- 2 = neg. change (-1 pnt)	1
<i>Story Composition</i>	Form A: S.S.	8 (25%ile)	Form B: S.S.	7 (16%ile)	-1= neg. change (0 pnt)	2

Note: SEM is Standard Error of Measurement

Performance measures for Participant #13 demonstrated a decrease in scores on both the Post Story Composition and Contextual Conventions subtests, with a decrease of 2 points on Contextual Conventions, measured as 1 point beyond the SEM, and a decrease of 1 point on Story Composition, measured as 0 points beyond the SEM; indicating an overall negative change of 1 point in level of effort.

Summary Participant #13 - Low group. Participant #13 demonstrated levels of self-efficacy beliefs and interest in the very high range, at level 5; *very sure; very interesting*, along with correspondingly low levels of feelings of difficulty, at level 1; *no feeling of difficulty* – level 2; *a little feeling of difficulty*, which appeared to accurately reflect his verbal story telling ability.

However, the self-regulatory profile for this participant is unusual because his responses to the measures of self-efficacy, interest and feeling of difficulty appear to be inconsistent with his actual written performance, though evidence from the transcript clarified that this student based his responses regarding feelings of difficulty, levels of interest and self-efficacy beliefs primarily on his verbal story telling ability. His behavior indicated that he was either unaware of his poor writing performance, or was trying to compensate for his deficits in writing skill by telling his story verbally, instead of through a written composition. Although he was generally unaware of writing strategies, he did use some verbal strategies such as self-evaluating “so story’s good,” and self-questioning: “Why he going back in the house to get his teddy bear?” He also stated how he chose the strategies he used: “Like, at one part, I chose to write about, like, one person. Then, I chose to write about another person, and that’s how I got through it.”...However, his strategies were primarily based on his verbal story telling: “I decided, that if I wanted to, then I did [use it]...but if I didn’t, if I thought it was, like crazy talkin’ then I said, like, Naw, that’s crazy and I didn’t use it.” His overall level of written effort was quite low, but the thread of his verbal story was elaborate, extensive, entertaining and highly imaginative, although it was broken by numerous repetitions, perseveration, and was fairly disorganized.

Summary of Cross-Case Trends: Low-Performing Group: #10, #11, #13

All three of the students in the Low Performing group, two Black males and one White female, had diagnoses of either a Learning Disability, ADHD or comorbid diagnoses. Two of these students had comorbid diagnoses for ADHD / Dyslexia, and one student was diagnosed with only ADHD. The two students who were attending public schools had either a 504 plan or IEP in place, while the remaining student, the White female, was in a home-school environment with private tutoring.

Two of the students in the Low performing group tried to use strategies at different points throughout composing, but the third used minimal strategies and was more focused on the verbal telling of his story than on the written composition. For instance, Participant #10 actually tried to use some of the strategies that were introduced prior to the composing task, such as using brain-storming to plan his story to create a main character and ideas for a plot. He exerted considerable effort in response to feelings of difficulty, and proactively used a variety of strategies. He acknowledged that his strategy use helped to increase his level of interest and confidence in writing. He also used some time management strategies during composing, and during the revising phase he reread his story to check for errors. However he worked slowly and his writing was labored, so overall, he had less time available to implement strategies.

Participant #11 used strategies proactively to try to increase her level of interest in the story, in response to feelings of difficulty. She also used brainstorming strategies at the planning phase, and some revising during composing. However, she appeared to focus on using mostly editing strategies to check for errors in spelling, punctuation and grammar at the revising phase.

Participant #13 used some self-questioning strategies, but his strategy use was primarily oriented toward his verbal story-telling, rather than on his composing.

The self-efficacy for writing self-report scores were very low for 2 of the students in this group: Participants #10 and #11, while Writing Apprehension self-report scores were somewhat higher than average for these two students; at level 4 on a 6 point scale. Prospective Feeling of Difficulty for these 2 students was at level 3 or 4; *some* or *much*. Both of these students also demonstrated feelings of difficulty at levels higher (3; *some* and 4; *moderate*) than their levels of self-efficacy (1; *not at all sure* – level 4; *sure*) during at least one phase of the composing task, with levels of interest (3; *somewhat* and level 5; *very*) higher than self-efficacy at two phases.

Both of these students also demonstrated focused strategy use during the composing task, though only one of them indicated familiarity with specific composing strategies, and each also achieved higher scores on the Post subtest measures, though their scores did not increase beyond the Standard Error of Measurement. However, think aloud and interview data indicated heightened effort during the composing task for both participants. Each of these two students showed scores below the mean of 9 on the *Off Task Behaviors* measure; with totals at 3 and 8. One of these students indicated experiencing feelings of difficulty primarily at the beginning when trying to determine what to write, but the other indicated feelings of difficulty primarily related to spelling challenges. Each of these students responded to feelings of difficulty by exerting more effort in strategy use.

The exception in each of the instances illustrated above was Participant #13, whose responses to most of the study measures primarily reflected his verbal story telling ability rather than his writing ability. For this participant, his levels of self-efficacy, at level 5; *very sure*, and Interest, at levels 4-5; *interesting-very interesting*, were much higher than his feelings of difficulty, which ranged from levels 1 – 2; *no feeling – a little difficulty*, throughout the composing task, because he loved to tell stories and felt very confident of his ability to tell a good story. However, his subtest scores decreased by 3 points from the Screening to the Exit measures; a decrease of 1 point beyond SEM indicating a slight decrease in effort, and his score on *Off Task Behaviors* measure was high above the mean of 9: at a total of 51, indicating numerous off task behaviors. His level of Writing Apprehension was in the average range, at level 3 on a 6 point scale, and both his Prospective and Retrospective Feelings of Difficulty were low, at level 1: *none at all*, though in the Exit Interview he did admit to having some difficulty during transitions points in the task. Although this student did not implement writing strategies,

he did try to use some verbal strategies in response to feelings of difficulty while narrating his story.

Research Questions

An analysis of the study results in response to the first research question “*1.) How does a writer become aware of the need to utilize specific strategies at different phases of the composing process?*” revealed that all students in the sample became aware of the need to utilize strategies when they felt “stuck” or experienced feelings of difficulty primarily at transition points at all different phases of the composing process. For instance, all nine students (i.e., the entire sample), indicated that they became aware of the need to exert more effort, to attempt to use strategies, or to change strategy use when they encountered a feeling of difficulty, specifically when trying to begin writing or when facing transitions at different phases of the composing task. This was particularly interesting because even students who were unfamiliar with composing strategies, (i.e. the majority of the sample), felt the need to use some type of strategy when feeling “stuck” so they used the few strategies they knew, or that were of personal interest to them, or that they felt would be helpful in targeting a specific aspect of the difficulty they perceived (*See Profile #s 1; 5; 12; 6; 8; 10; 11*).

For instance, a number of participants described the awareness of being “stuck” in ways that support Efklides’ theory (2011) that unpleasant affective cues, such as feelings of difficulty, experienced during a learning task can indicate a lack of fluency in processing that triggers analytical responses. As applied to composing, unpleasant affective cues, such as feelings of difficulty, or feeling “stuck” appeared to help the writer recognize a possible failure in meaning making, a lack of idea generation, or triggered estimates of effort or time management; all of

which prompted the writer to decide to implement new strategies, change or adjust strategies, or exert more effort.

The nine descriptive profiles in this study demonstrated examples of the ways in which students became aware of the need to implement strategies or exert more effort. Participant #12, for example, demonstrated high feelings of difficulty throughout the composing process, but stated that she especially had difficulty at the beginning when she felt stuck, and became consciously aware that “I don’t know what to write....I don’t know how to start it.” In response to her feeling of difficulty, she finally decided to use the unusual strategy of beginning the story with a sound “Boom!” which triggered ideas for her, and enabled her to begin writing effectively. Participant, #5, indicated that when he had feelings of difficulty during composing he paid more attention to specific aspects of his writing: “when it became more difficult, I guess I paid more attention to...um...how I phrased sentences...how I spelled words and stuff.” One student, participant #8, described what it felt like to get “stuck” while writing, and how it prompted his change in strategies: “It’s like...you finish a sentence or whatever, and then you have to...the sentence doesn’t lead on to anything else...so you have to either go back and change it, or change subjects and all...start a new paragraph and all.” Another student, participant #14, stated that when she experienced difficulty and concern that she might not have time to finish, she was prompted to exert more effort: “...just gonna try as hard as I can...and just try to finish it...” All nine participants in the study indicated unpleasant affective cues at some point throughout the composing process that sparked their awareness to change, adjust or implement strategies, to monitor time, or to exert more effort.

An analysis of the results in response to research question *1.a.) “What strategies do writers use at different phases of the composing process?”* indicated that the majority of the

students chose to use different strategies that targeted the specific needs they perceived at each phase of composing, and which were strategies that they understood how to use. For instance, at the planning phase of composing, students' choice of strategies included brainstorming; outlining or listing ideas; organizing ideas; or verbalizing story ideas, characters and plot line, whereas at the performance phase the choice of strategies included referring back to the plan; re-reading the text and revising during the writing process if needed; as well as repeating ideas or rephrasing ideas while writing. At the final, revising phase of the composing process students' choice of strategies included re-reading the text; editing (e.g., targeting spelling, punctuation, and capitalization in addition to rephrasing sentences and correcting grammatical errors); as well as comparing the written product against the initial plan.

Results related to research question *1.b) "How do writers' feelings of difficulty relate to choice and adjustment of strategies at different phases of the composing process?"* show that the majority of the sample (i.e., 7 students; 3 High performing, 3 Average performing, and 1 Low performing), demonstrated both *prospective* and *retrospective feelings of difficulty* at level 3; *some difficulty*; and all nine students indicated that they experienced some level of difficulty at some point during composing. Additionally, the entire sample, all 9 students from each level of ability, indicated experiencing *feeling of difficulty* at transition points either between phases, or within phases of the composing process that prompted the need to either implement, change, or adjust strategy use; exert more effort; or implement time management techniques, as specified in response to research question #1. As also stated in response to research question #1, these findings support Efklides' (2011) MASRL model, in which affective cues, such as feelings of difficulty, trigger analytical processes that prompt strategy use. The findings also support theories of SRL that emphasize the critical importance of metacognitive monitoring and control

as being key to self-regulated learning (Greene & Azevedo, 2007; Winne, 2001; Winne & Hadwin); as well as being a key component in the self-regulated composing process, as the writer moves through the three phases of writing: planning, performance, and revision (Graham & Harris, 1997; 2005; Troia, 2006; Zimmerman & Risemberg, 1997). The motivational and affective factors that influence metacognitive monitoring can also affect how an individual decides to use specific strategies, how strategies are enacted, and how persistently students enact those strategies (Efklides, 2009; 2011; Graham et al., 2005; Linnenbrink & Pintrich, 2004; Winne & Hadwin, 2008; Zimmerman & Schunk, 2008).

As demonstrated in the current study, the profiles illustrating students' self-regulatory processes and responses to the perceived feelings of difficulty that they experienced during the planning phase of composing, prompted them to either: implement strategies to brainstorm and organize their ideas; develop a plan; or implement a jump-start strategy. For instance, Participant #1 indicated that she felt difficulty when trying to shift from one part of brainstorming to another; such as when she would write one sentence and then would write something else that happened, but she also had difficulty figuring out how to link the ideas: "Like, it was hard to...kind of...change from one of the topics to the other." Participant #6 also had difficulty at the planning phase when trying to figure out what to write about. Although he did not acknowledge much strategy use during most of the composing process, he indicated that as a response to his feeling of difficulty during planning, he "looked at the picture and made up a story."

During the actual composing phase of the task, the students used different types of strategies in direct response to the feelings of difficulty they experienced. For instance, Participant #12 decided to implement a strategy to jump-start her story when she felt stuck and

did not know how to start composing; by using a noise at the very beginning of her story that helped her generate more ideas for the plot line. Participant #8 also indicated feeling stuck during the composing process at different points, and he responded by going “back to my planning sheet, or just move on to the next event...just kind of abruptly.” Participant #14 also experienced difficulty during composing when faced with transitions, and she indicated using self-questioning techniques at such points: “Like, um, trying to make it go into...like, transition...to a different setting in the story...Like, him coming into the house, and stuff ...Like should I say that he was coming into the house? Or should I make it...better?” Even Participant #13, who claimed to have little difficulty writing, indicated that composing became more difficult for him during transition points in the story “Difficulty would change, because they’re doing different things, and you’ve got to write about what they’re doing...So, that’s how, that’s how it would change...”

Three of the students also indicated increased feelings of difficulty at the revising phase, for various reasons; either they did not like to revise (i.e., Participant #s 1, and 6); or self-evaluating was difficult because they did not think they were good writers and often focused primarily on their mistakes (i.e., Participants #s 5, and 8); or, like Participant #11, they had difficulty with spelling and grammar, and had to exert more effort at the revising stage to edit their work. In each case, the feeling of difficulty prompted most of the students to analyze the problems encountered at different points during composing, and respond with a type of strategy that they felt would address the problem effectively. Though, in some cases a few of the students, such as Participants #s 6 and 13 opted not to revise, there was no direct evidence from the transcripts to indicate whether or not their avoidance of revising was due primarily to feelings of difficulty at that point.

Analysis of the results in response to research question 2.) *In what ways do writers' feelings of difficulty relate to their ability to effectively monitor and self-regulate the composing process at each of the three self-regulatory phases: forethought, performance and self-reflection?"* revealed that the experience of feelings of difficulty generally contributed to the students' ability to self-monitor and self-regulate cognitive, affective and motivational factors at various points during the three phases of composing. This finding demonstrates support for the model of composing as a recursive, self-regulatory process that integrates cognitive, affective and motivational factors at each phase, as illustrated in Figures 1 and 2. These findings also help to illustrate aspects of the social cognitive model of writing, in which the writer is perceived to be an active agent who must regulate affective, cognitive, and motivational factors throughout the composing process (Pajares & Valiante, 2006; Zimmerman & Risemberg, 1997); as well as the model by Hacker et al. (2009) that also conceptualizes writing as a process of ongoing metacognitive monitoring that unfolds in response to cognitive, affective and motivational factors that are unique for each individual writer.

For instance, in this study the nine descriptive profiles demonstrated that all students in the sample implemented some type of strategy in response to feelings of difficulty. All students reported that the feeling of difficulty made them aware of specific problems at some point during composing, and prompted them to either focus increased attention on the issue; attempt to implement a strategy to try to resolve the problem; change or alter strategy use; try to increase their levels of interest; and/or try to exert more effort, as elaborated in response to research questions nos. 1) and 1.b) above. This occurred most frequently during transition points in the *Planning/Forethought* and *Composing/Performance* phases, though it also occurred to a lesser degree with revising and editing at the *Self-Reflection* phase.

Some of the participants consciously exerted effort to regulate their affective responses to the feeling of difficulty by trying to increase their level of interest in the composing task. For instance, in response to feelings of difficulty that triggered her awareness of her lack of interest in the story she was writing, Participant #14 consciously chose to try to make her story more interesting by adding dialogue and changing aspects of the plot. As she made these changes to her story, her feelings of difficulty dropped and both her levels of interest and self-efficacy rose in response. Similarly, Participant #10 consciously implemented strategies and made changes to his story that helped him become more interested and more confident in his ability to write a good story; and as his levels of self-efficacy and interest increased, his feelings of difficulty decreased. Similarly, Participant #11 was able to self-regulate her levels of interest in response to feelings of difficulty by making changes to her story that “made it more my own,” and increased her level of interest temporarily during the performance phase. However, her feelings of difficulty rose, and interest and self-efficacy fell, when she realized all of the spelling and grammatical errors that she was unable to correct during the revision phase.

It is also interesting to note that, although Participants #6 and #13 indicated minimal feelings of difficulty on self-report and micro-analytic measures during the writing task, their transcripts demonstrated that, at certain instances they each responded to specific feelings of difficulty with either increased effort or altered strategy use.

Research question 2.a.) “*How is this demonstrated by students at different levels of ability?*” results revealed that all students, at each level of ability, indicated experiencing some *feelings of difficulty* during composing, and through self-monitoring each was able to determine the exact points when the feelings of difficulty occurred. However, their self-regulatory responses, such as the level of effort they put forth, and the types of strategies they chose to use

in response to difficulty varied greatly among individuals within groups, as well as across groups.

For example, the perceived feelings of difficulty that students experienced during the Forethought, or planning phase of composing prompted them to either implement strategies to organize their ideas (i.e., Participant #1: High); develop a plan (i.e., Participants #s 1, 5, 8: High, 14: Average, 13: Low); implement a jump-start strategy (i.e., Participant #s 12, 5: High, 14: Ave); or brain storm (i.e., Participants #s 5, 12: High, 6, 8, 14: Ave., 10 11, 13: Low). The majority of the students, a total of 8, at all ability levels, chose the brain storming strategy while planning their stories.

During the Performance, or actual composing phase, students used a variety of strategies that included: developing an introduction to their story (Participant #s 1, 12: High; #s 8, 14: Ave); implementing ongoing revising (Participant #s 1, 5, 12: High; #s 6, 14: Ave., # 10: Low); implementing ongoing editing (Participant #s 5: High; # 6: Ave.; #s 10, and 11: Low); using self-questioning techniques (Participant #s 5, 12: High; #s 8, 14: Ave.; #13: Low); monitoring remaining time (Participant #s 5, 12: High; # 10 Low); and self-evaluating during composing (Participant #s 12: High; #s 8, 14: Ave.; # 13: Low). The majority of the students, a total of 6 at all ability levels, chose to implement the strategy of ongoing revising during composing.

Lastly, during the Self-Reflection, or revising phase, students used three different types of strategies that are commonly used during revising including: editing for spelling, punctuation and grammar errors (Participant #s 1, 5: High; #s 8, 14: Ave.; # 11: Low); revising by changing wording, sentence structure or details (Participant #s 1: High; #8: Ave.; #11: Low) and self-evaluating their work (Participant #s 1, 5: High; #14: Ave.). In this case, the majority of the

students, a total of 5, at each ability level chose to use the editing strategy; though some students simply refused to revise their work, such as Participant #s 6, and 13.

An analysis of the results related to research question **2.b) “*How is this demonstrated by students with heightened levels of writing apprehension?*”** revealed that students with both moderate; level 3, and higher levels of writing apprehension, (i.e., ratings of 4 – 6 on the 6 point Likert scale), were found in *all three groupings of ability level*; and level of writing apprehension appeared to interact with other factors such as feelings of difficulty and levels of interest and self-efficacy, to influence on level of effort. Additionally, the results revealed that some students in the High (i.e., Participant #s 1, 12); Ave. (i.e., Participant #s, 6; 8; 14); and Low (i.e., Participant #s 10; 11) performing groups, who demonstrated heightened levels of writing apprehension, at levels 4-6, generally exerted more effort than the other students, or changed strategies in response to feelings of difficulty. Additionally, 5 out of these 6 students indicated a heightened feeling of challenge and difficulty at the initial stages of the composing task, during either the Forethought or Performance phases (*See Participant #s 2; 6; 8; 14; 10*).

An analysis of the results related to research question **3.) “*How do writers’ self-efficacy beliefs, in combination with levels of interest, relate to their levels of effort and persistence at different phases of the composing task?*”** indicated a complimentary relationship between self-efficacy and interest, that appeared to be related to heightened levels of effort and persistence. For instance, the nine case Profile Graphs illustrated a complimentary relationship between self-efficacy beliefs and interest by showing that for the majority (i.e., 6) of the participants, the trajectories of self-efficacy and interest appeared to be occurring generally in tandem (with slight variations at some phases; *See Profile #s: 1; 6; 8; 14; 11; 13*). The findings support theories of self-efficacy that demonstrate that self-efficacy influences choice of strategies and levels of

effort, and is correlated with indices of self-regulated learning, as well as with changes in interest (Linnenbrink & Pintrich, 2003; Niemvirta & Tapola, 2007; Schunk, 2003; Schunk & Pajares, 2002; Schunk & Zimmerman, 2007). Findings also support theories of interest that demonstrate that interest levels have been shown to enhance levels of attention, effort and persistence, as well as progress toward learning goals; all of which also enhance self-efficacy (Hidi & Ainley, 2008; Hidi & Renninger, 2006).

For instance in the current study, the 6 students who indicated levels of self-efficacy and interest at level 3; *somewhat sure* and *somewhat interesting*, or above, in 2 out of 3 phases, demonstrated either high scores on both Screening and Exit subtests, or increases in their post scores on the Contextual Conventions and Story Composition subtests (See *Profiles #s: 1; 5; 12; 14*). The exception to this was participant #13, whose very high levels of self-efficacy and interest were in response to his verbal story telling ability, which was quite entertaining, and were not accurately reflective of his written performance (See *Profile #13*). For the 3 remaining participants, although the trajectories of self-efficacy and interest do not appear in tandem, there is evidence of an interactive relationship between them, as clarified by the participants' responses in the think aloud and Exit Interview data (See *Profile #s: 5; 12; 10*).

For instance, Participant #5 stated that when he felt that the task became more difficult he increased his level of effort and strategy use, and that for him, the heightened level of challenge enhanced his level of interest: "I thought it would be a little easier than it was...it was a bit more of a challenge...I thought it was a little too short, so I had to lengthen it, which made it a little more interesting to me" (See *Profile #5*). However his level of confidence did not always match his level of interest: "Somewhat confident. I've been told that I'm a good writer, but I don't think I am a good writer." His overall response coupled with his profile indicates that when this

student faced difficulty he was able to maintain a relatively high level of interest even though his self-efficacy beliefs dropped somewhat, and that the increased effort that he invested resulted in his ability to improve his story. By the Self-Reflection phase his self-efficacy beliefs had increased, and his level of difficulty decreased.

In another example, even though Participant #12 faced the challenge of high levels of writing apprehension coupled with high levels of feelings of difficulty, through exerting concerted effort she still managed to achieve high scores on both of the Story Composition and Contextual Conventions subtests. However, although her levels of interest remained consistent at level 3; *somewhat interesting*, and her self-efficacy beliefs rose from level 1; *not at all sure* to level 4; *sure*, she felt that if the writing task had been more interesting to her, she might have performed better: “I feel like if I’d had an interesting... a more interesting topic, I might have done a little better...”

The relationship between interest and self-efficacy beliefs that influenced effort was quite apparent in the transcript for Participant #10 who exerted considerable effort despite the challenge of his learning disability: “Well, I used to not like writing, because it was so hard, but then I learned different stuff and...it got easier, and I really enjoy doing it.” He also indicated that his level of interest increased during the writing task “...but then when I started to write about it, it got more and more interesting, every time.” The difference between pre and post subtest scores, a total increase of 3 points, indicated a heightened level of effort, and his low score on the *Off Task Behaviors* measure (i.e., total of 1) demonstrated a marked degree of focus and persistence during the composing task. In each of these cases, the interaction between interest and self-efficacy appeared to influence the students’ ability to effectively self-regulate during the composing process, and resulted in increased levels of effort and persistence.

An analysis of the results related to research question 3.a.) *How are these relations demonstrated by students at different levels of ability?* revealed specific interactive patterns of self-efficacy and interest relative to feelings of difficulty across ability groupings, at the High and Average levels. The most striking pattern demonstrated that for the High performing students, levels of self-efficacy and interest were initially *higher* than feelings of difficulty, with levels of writing apprehension in the average range for the majority of these students. For instance, for 2 out of 3 students in the High performing group, levels of self-efficacy beliefs and interest were initially *higher* than feelings of difficulty, at level 3; *moderate* (See Profiles #s 1; 5), while levels of writing apprehension were in the average range. Whereas for the Average performing group, all three students (See Profile #s 6; 8; 14) indicated *heightened* levels of writing apprehension at *level 4 or above*, with feelings of difficulty in the moderate range or above; and all 3 Average performing students had levels of self-efficacy and interest that were initially *lower* than their feelings of difficulty. This finding also appears to support the theories that demonstrate that self-efficacy and interest can enhance each other and increase engagement in writing (Hidi & Ainley, 2008; Hidi, Berndorff & Ainley, 2002), as cited in response to research question #3, above, but it also points to their interactive relations in contrast to feelings of difficulty.

For instance, for 2 out of 3 of the Average performing students' (See Profiles #s 6; 8), levels of self-efficacy and interest did not rise above their feelings of difficulty throughout all three phases of the composing task. However 2 of the average level students did demonstrate higher subtest scores; with increases of between 2 to 3 points from Screening to Exit subtest measures, indicating that they did experience an increase in effort. Additionally, *Off Task Behaviors* measures for all 3 of the students in the Average performing group showed scores at

or near the median: 9; ranging from totals of 8-12. Similarly, two of the students in the High performing group (#1; #5) showed scores ranging from totals of 8-9; indicating an average level of persistence.

The exception in the High performing group was participant #12, who reported a very high level of writing apprehension and high levels of feelings of difficulty throughout the composing task. However, in her case, her level of self-efficacy rose to level 4; *sure* to match her heightened level of feeling of difficulty, at level 4; *moderate difficulty* during the Self-Reflection phase; as she realized that her increased effort had enabled her to perform effectively despite the difficulty that she faced. The *Off Task Behaviors* measure for Participant #12 showed a total score of 27 that was considerably above the median of 9; indicating multiple distractions as she worked through the composing task. Her overall level of effort must have been considerable to counter both her high levels of writing apprehension and heightened feelings of difficulty; however she succeeded in meeting the challenges she faced, and her self-efficacy rose dramatically in response.

In the Average performing group, Participant #14 demonstrated increased effort, as measured by her Exit subtest scores: +3; measured as 2 points beyond SEM) that was reflected in the increase in both her levels of self-efficacy and interest: at level 3; *somewhat sure; somewhat interesting* by the Self-Reflection phase of the task. Her score on the *Off Task Behaviors* measure was also close to the median: 9, at a total of 8; indicating an average level of persistence.

The most variation however, was apparent in the Low performing group. Although 2 out of 3 students in this group indicated heightened levels of writing apprehension, at levels 4 - 5,

only 2 students (*See Profile #s 10; 11*) indicated feelings of difficulty at level 3; *some* or above. Additionally, all 3 of these students demonstrated self-efficacy beliefs and interest at levels *higher* than their feelings of difficulty at some point during the composing task; and 2 of these students demonstrated very high levels of self-efficacy beliefs and interest, and relatively low levels of difficulty (*See Profile #s 10; 13*). *Off Task Behaviors* measures for each of these students were actually much lower than the median of 9, with total scores ranging from 1-3. The measures for the third student however, reflected his perceptions of his verbal story telling ability but not his written work, and his subtests scores showed an overall decrease of 3 points on the Exit subtests. The *Off Task Behaviors* measure for this student (i.e., Participant #13) was much higher than the median of 9; at a total of 51, reflecting his very high level of distraction. Results from the Low performing group lend support to theories that indicate that students with learning disabilities often have deficits in their knowledge of composing, deficits in metacognitive ability, and inaccurate estimates of their writing competency (Graham, Schwartz & MacArthur, 1993; Hooper et al., 2006; Troia, 2012).

The evidence in response to research question 3.b) “***How are these relations demonstrated among students with heightened levels of writing apprehension***” indicates a marked pattern when evaluated by performance level, as one indicator of effort. For instance, levels of *writing apprehension* were in the average range for 2 out of 3 students in the *High performing group*, who demonstrated both interest and self-efficacy at level 3; *somewhat sure; somewhat interesting* at two or more phases of composing. For *all three of these students*, feelings of difficulty were relatively low: level 2 – 3 (*See Profile #s 1 and 5*). The exception was Participant #12, who had high levels of writing apprehension, and high levels of feelings of difficulty, though her levels of self-efficacy and interest were also at level 3 or above for 2

phases. Effort scores for this group ranged from no change in scores, to slight negative changes, with subtest scores at the 91st – 99th percentile ranks for all 3 students, and transcript evidence for this group also indicated marked effort and persistence. In the High performing group therefore, self-efficacy and interest appeared to fuel the students' level of effort; as all 3 students were able to offset the effects of writing apprehension and achieve very high post subtest scores.

Whereas for the Average performing group, *all 3 students demonstrated heightened levels of writing apprehension*, at level 4 or above, with feelings of difficulty ranging from levels 2; *a little difficulty* – level 5; *very strong feeling of difficulty*. For 2 of the 3 students in this group feelings of difficulty were higher than levels of self-efficacy and interest at two or more phases of the composing task; *and all 3 students demonstrated higher feelings of difficulty at the Forethought phase*. Although performance scores were not as high for this group, changes from Screening to Exit subtest scores did indicate score increases of 2 to 3 points for two of the students, showing increases in effort from pre to post measures. Transcript evidence also indicated that two of these students demonstrated increased effort in strategy use when facing difficulty. The fact that both levels of writing apprehension and feelings of difficulty were heightened for these students, and self-efficacy and interest were relatively low at the Forethought phase, lends support to the theory that self-efficacy and interest may be necessary at the initial stages of the planning phase to fuel motivation throughout the composing process (Hidi & Ainley, 2008).

Heightened levels of writing apprehension were also demonstrated by 2 students in the Low performing group; levels 4-5, who indicated feelings of difficulty ranging from level 1; *no feeling of difficulty* to level 4; *moderate difficulty*. Levels of self-efficacy and interest also showed more variation in this group, although two out of the three students demonstrated levels

of self-efficacy and interest higher than feelings of difficulty at two or more phases during composing. Transcript evidence indicated that 2 of the students in this group exerted marked effort and persistence, though their subtest scores were low, and they demonstrated no increases beyond SEM on Exit subtest scores. Although performance scores varied by group, some students at all three ability levels who had heightened writing apprehension demonstrated marked persistence and effort, and some also demonstrated resulting increases in self-efficacy and interest; for examples see profiles #12; #10; and #14. However, the cross case trends revealed that levels of self-efficacy and interest were higher than feelings of difficulty at the Forethought phase for the High performing group, supporting theories that self-efficacy and interest may fuel motivation and increase strategy use (Efklides, 2011; Linnenbrink & Pintrich, 2003; Niemvirta & Tapola, 2007; Schunk, 2003; Schunk & Pajares, 2002; Schunk & Zimmerman, 2007). It is also interesting that, although they did not score at high levels of performance, even students in the Low performing groups showed increases in effort and persistence when they demonstrated heightened levels of self-efficacy and interest.

The fourth research question 4.) *“How do writers’ feelings of difficulty relate to their self-efficacy beliefs and levels of interest at different phases in the composing process?”* when examined in terms of descriptive profiles and cross-case trends, illustrated interactive relations among feelings of difficulty, self-efficacy and interest for all 9 students in the sample. Specifically, 7 out of 9 cases demonstrated that both self-efficacy beliefs and levels of interest increased or decreased interactively, in tandem patterns, relative to *feelings of difficulty* (See profile #s: 1; 5; 6; 8; 14; 11; 13 also see responses to research questions #s 3); 3. a) and 3. b), above).

The remaining 2 cases (*see profile #s 12 and 13*) had more unusual patterns of interaction between interest, self-efficacy and feelings of difficulty; though similar relations of tandem patterns were apparent in light of transcript evidence. For instance, in the case of Participant #12, although she experienced very high levels of apprehension and feelings of difficulty toward writing, she exerted considerable effort to implement strategies and make her story more interesting, which resulted in marked increases in her levels of self-efficacy. The case of Participant #13 however, was different because he did not have strong feelings of difficulty during composing, even though he performed very low on subtests of writing skills; instead, he demonstrated very high levels of interest and self-efficacy related to his verbal story telling ability, which was very entertaining. Even though Participant #13 had substantial deficits in composing skill, he was very engaged in creating a story verbally and felt very confident of his ability to do so. In his case, although his slight feelings of difficulty prompted some change in his story telling and writing strategy use, it was not calibrated to his actual performance.

An examination of these trends by ability grouping in response to research question **4. a.)** *How are these relations demonstrated by students at different levels of ability?* indicated marked variation among and within groups, with the greatest variation occurring in the Low performing group. In the High performing group, two of the students (i.e., the majority), demonstrated levels of self-efficacy and interest that were initially higher than their feelings of difficulty at the beginning of the composing task, but fluctuated at different phases of the composing task (*see profile #s 1; 5*). For all 3 of the High performing students, interest remained fairly constant, at level 3; *somewhat interesting*, while self-efficacy gradually rose to level 4; *sure* for 2 students, or fell, to level 2; *a little sure*, for one student, in contrast to feelings of difficulty (*See Profiles #s 5, 12*). The exception was Participant #12, whose level of self-

efficacy rose dramatically, from level 1 to level 4; *sure*, to finally meet her feeling of difficulty at level 4; *moderate difficulty*.

In contrast to the High performing group, for all 3 Average performing students, levels of interest were initially lower than or equal to their self-efficacy beliefs, but they later rose or fell in tandem with self-efficacy (*See profile #s 6; 8 and 14*). However, for all 3 Average performing students, levels of self-efficacy and interest fluctuated at different phases of the composing task, as was also demonstrated with the High performing group. Interestingly, for all 3 students in the Average performing group, *feelings of difficulty* were initially *higher* than levels of either interest or self-efficacy; whereas for 2 students in the High performing group, levels of *self-efficacy and interest were initially higher* than feelings of difficulty at the beginning of the composing task.

Among the Low performing students, similarly to both High and Average performing students, levels of self-efficacy and interest fluctuated at different phases of the composing task. However, the most variation occurred in the Low performing group, with one student's levels of self-efficacy and interest clearly unrelated to his actual written performance on the composing task, though it fairly accurately reflected his verbal performance. However, in this group, as with both the High and Average performing groups, *levels of self-efficacy beliefs and interest were also found to increase or decrease relative to feelings of difficulty*. For instance, for Participant #10 feelings of difficulty decreased at the Performance Phase as self-efficacy increased; for Participant #11 as feelings of difficulty rose and remained constant, self-efficacy and interest decreased; and even for Participant #13, when feelings of difficulty at the Performance phase rose, levels of interest decreased, although self-efficacy remained constant.

An analysis of the results related to research question **4 b.)** ***“How are these relations demonstrated by students with heightened levels of writing apprehension?”*** indicates that for 8

out of 9 of the students in the sample writing apprehension appeared to be related to feelings of difficulty. For instance, in all 6 cases where writing apprehension was at level 4 or above, on a 6 point scale, feeling of difficulty levels were often higher than self-efficacy beliefs at one or more phases (*See profile #s 12; 6; 8; 14; 10; and 11*).

An analysis of the results related to research question 5.) ***“How do writers’ feelings of difficulty relate to their levels of effort and persistence at different phases of the composing process?”*** is best answered with evidence from the transcripts of the qualitative think aloud and Exit Interview data. The participant responses below are grouped according to ability level, to simultaneously address research question 5.b) ***“How are these relations demonstrated by students at different levels of ability.”*** In all 9 of the cases (*See Profile #s 1; 5; 12, 6; 8; 14; 10; 11; and 13*) participants responded to feelings of difficulty at any phase of the composing task with either increased effort or a change in strategy use. Additionally, the majority of the participants, (i.e., 7 out of 9), indicated that they experienced feelings of difficulty most frequently during transition points in the composing task (*See Profile #s 1; 5; 12; 6; 8; 14; 10; 13*).

For instance, in the High Performing Group, Participant #1 responded to a feeling of difficulty at the Forethought phase at level 3; *some difficulty*, by introducing a strategy to begin composing her story: “I’ll have to start by making like an introduction kind of...Like, I can’t just say...just start in writing.” She also acknowledged that it felt difficult to change from one topic to another. Participant #5 indicated feeling higher levels of difficulty during the Performance phase, at which point he applied more effort and used revising strategies during composing: “When it became more difficult, I guess I paid more attention to how I phrased the sentences...how I spelled the words and stuff. I tried harder...when it felt more difficult.”

Participant #12 demonstrated that even though she experienced considerable difficulty in beginning the composing task, she mustered a great deal of effort to try hard, and to even use an unusual strategy to jump-start her story: “I don’t know how to start it...I don’t know what to write....I’m really nervous about this...but, I’m trying...I’m just gonna start it off with something...the best I can come up with...” and she began her story with a sound “Boom!” that worked to generate interesting ideas for her story. All three of these students scored in the High range on both the Screening and Exit subtest measures, and 2 of them demonstrated scores near the median range (8-9) for the measure of *Off Task Behaviors*; though the score on this measure for Participant #12 was considerably higher, with a total of 27, due to her increased apprehension and difficulty.

In the Average Performing Group, Participant #6 indicated that he did feel difficulty at the beginning, when trying to figure out what to write, but then his level of difficulty dropped. He did not however, verbalize the particular strategies he used to generate his ideas for the story, other than just looking at the picture to make up the story. Participant #8 also had difficulty beginning his story, but consciously chose to use strategies to develop ideas for his story by first referring back to his plan, and then by trying to describe the main character and how he would connect to the plot line: “I think I’ll make the storm happen after him and his siblings get home from school.” He also described additional strategies he used when facing difficulty during composing: “When I got stuck, or didn’t know what to write...the sentence doesn’t lead on to anything else...so you have to either go back and change it, or change subjects and all... start a new paragraph and all.” Participant #14 indicated that she felt difficulty during composing when “Like...trying to make it go into...like, transition...to a different setting in the story”, and in response to the feeling of difficulty she stated that she was “just gonna try as hard as I can....”

Though each of these students scored in the average range, two of them demonstrated increases in Exit subtest scores: of 2 to 3 points beyond SEM; indicating increased effort. Also, scores for the *Off Task Behaviors* measure for each of these students fell near the median of 9; ranging from 8-12.

Students in the Low performing group exhibited the most variation in their responses to feelings of difficulty; however each of them acknowledged responding to feelings of difficulty with either an increase in effort or change in strategy use. For instance, Participant #10 whose feeling of difficulty was initially fairly high, at level 4; *moderate difficulty*, as indicated by micro-analytic measures, made a point of using the strategies introduced by the researcher: “I think both of them helped me very well during this task...of knowing what to do, when to do it, and what to put and where to put it.” He continued to explain that “I used to not like writing, because it was so hard, but...then I learned different stuff... and it got easier...” Participant #11 indicated that most of her feelings of difficulty were related to spelling, so she consciously used editing strategies and put out increased effort during composing and during the Self-Reflection phase to correct her spelling errors. Even participant #13, who appeared to be generally unaware of his below average performance in writing, and who based his responses on his verbal story telling ability, admitted to having some difficulty during the composing task, though not much: “Oh, it would change...like, difficulty changed because... like, one on one you’re talking about what people... and the difficulty would change, ...’cuz like, and had to write, like, what they were doing at that time, and stuff like that...” Interestingly, 2 students in the Low performing group showed scores well below the median on the measure of *Off Task Behaviors*; totals 1 – 3, indicating a marked focus on the task. However, Participant #13 demonstrated lowered scores on the Exit subtest measures (-3) and an extremely high score on the measure *Off Task*

Behaviors; total 51; indicating a high level of distraction throughout the composing task. In each of these cases, feelings of difficulty were experienced at one or more specific points where students were facing challenges during composing, and the feelings of difficulty prompted some type of response, whether strategy use, or exertion of extra effort.

An analysis of the results to research question **5.b.) *How are these relations demonstrated by students with heightened levels of writing apprehension?*** indicated that the 6 students who had heightened levels of writing apprehension, at levels 4 or above on a 6 point scale, were found in each of the three ability groupings: High performing (#12); Average performing (#6; #8; #14); and Low performing (#10; #11). All 6 of the students who demonstrated heightened levels of writing apprehension also indicated feelings of difficulty at level 3; *some difficulty* or above, at some point during the composing task; with 3 students demonstrating feelings of difficulty at levels 4; *moderate feeling of difficulty* or 5; *very strong feeling of difficulty*. These findings support the results of Lee (2013) who found that both male and female students at all levels of writing, including highly competent writers, experienced heightened levels of writing apprehension. Findings from the current study also indicate that elevated levels of writing apprehension may have exacerbated feelings of difficulty for some students, during composing.

CHAPTER V CONCLUSIONS

In recent years, the importance of examining the integrated roles of cognition, affect and motivation within the process of self-regulated learning has been emphatically stressed by researchers in the field of Self-Regulated Learning (Efklides, 2009, 2011; Hidi & Ainley, 2008; Pintrich, 2000; Winne & Hadwin, 2008; Zimmerman & Schunk, 2008;). Although different theoretical approaches have offered important insights into some ways in which cognitive and motivational processes critical to self-regulated learning function in isolation, few researchers have fully elaborated the relations among motivation, cognition and affect as integrated processes (Efklides, 2009, 2011; Pintrich, 2000; Winne & Hadwin, 2008; Zimmerman & Schunk, 2008). Researchers who study the self-regulated process of composing have echoed the urgency of examining cognition, affect and motivation as integrated processes that have been theorized to have a marked influence on effective composing (Boekaerts & Rozendaal, 2007; Hacker et al., 2009; Harris & Graham, 2005; Hidi & Boscolo, 2006; Pajares & Valiante, 2006; Schunk & Zimmerman, 2007; Troia, 2006). When they are investigated as a series of self-regulatory events, an examination of the interactions among cognitive, affective and motivational processes that occur during composing offers insight into addressing the pressing question posed by both information processing and social cognitive theorists; of *how* writers become aware of the need to initiate, adjust or change strategies, in addition to *how* they are able to effectively monitor cognition and affect in relation to motivational factors throughout the composing process. The descriptive profiles of the participants in this study offer an illustration of the

interactions among cognitive, affective and motivational processes that unfold in unique patterns for each individual writer, as evident when the composing process is examined as a series of self-regulatory events.

Contributions

A major contribution of the current study involves the application of the MASRL model (Efklides, 2008; 2009; 2011) to the process of composing; allowing for an investigation of the ways in which cognition, motivation and affect are monitored and controlled through choice and adjustment of strategies, and regulation of effort and interest. The application of this model to the composing process reveals insights into the ways in which writers first become aware of their motivational and affective states as they encounter challenges and experience feelings of difficulty while involved in a composing task. Additionally, all nine of the participants reported experiencing feelings of difficulty primarily when they attempted to begin composing and/or when they faced transition points in the composing process. During composing, all nine of the students were also aware of, and able to monitor and respond to specific aspects of their motivation, affect and cognition (in the form of strategy use, effort regulation, and/or regulation of interest), in response to feelings of difficulty. For instance, when prompted by feelings of difficulty, many students were able to focus increased effort to analyze the specific problem, implement strategies to address the problem and/or self-regulate their levels of interest to increase interest and confidence and to offset negative affective feelings when facing challenges.

Additionally, by examining the ways in which feelings of difficulty influence the monitoring and regulation of cognitive strategies, as well as the motivational processes of interest, self-efficacy beliefs, and levels of effort and persistence, insight was gained into the influence that unpleasant affective cues exert on self-regulatory processes. Specifically, because

feeling of difficulty is an unpleasant affective cue that indicates lack of fluency in processing, and directs attention to possible sources of the problem, it is understood to trigger control processes and further analysis on the part of the writer, to determine whether or not a change in strategy is needed, or regulation of motivational factors is required (Efklides, 2011). In the current study, findings showed that all students experienced feelings of difficulty at transition points in the composing process, which often prompted students to change strategy use or exert more effort, and/or try to self-regulate levels of interest.

Evidence from the think-aloud transcripts and Exit Interviews demonstrated that all nine students experienced some level of feelings of difficulty when they felt “stuck” during the composing process, whether in trying to generate ideas at the beginning of the writing task, or during transition points throughout different phases of the composing task. Many of these students specifically stated that they consciously chose to try new writing strategies (see Participant #5, #10; #12), change strategies (see Participant #1; #5; #6; #8, #10, #11, #12, #13, #14), increase their level of effort (see Participant # 5; #8, #10, #11, #12; #14) or even try to increase their level of confidence (#10, #14) and interest in the composing process (see Participant # 5; #10, #11, #14). Feelings of difficulty also appeared to influence regulation of motivational processes by triggering estimates of effort and time needed for task processing (Efklides, 2011); issues that are critical to composing, as writers frequently face challenges throughout composing tasks that require increased levels of effort and persistence to overcome (Troia, 2006; Zimmerman & Risemberg, 1997). In the current study, for instance, a number of the participants responded to feelings of difficulty by expressing concern about the amount of time left during a particular phase of the composing task, and trying to change or implement strategies accordingly.

In addition to closely examining the interaction of feeling of difficulty with motivational and cognitive processes, I also examined the reciprocal interactions among motivational factors such as self-efficacy beliefs and levels of interest, which are both critical to effective composing, as well as to levels of effort and persistence in the use of cognitive writing strategies. For example, the descriptive profiles demonstrated relations between levels of interest and self-efficacy beliefs, which often increased or decreased in tandem, relative to feelings of difficulty. This is evident in the High performing group, who scored in the 91st percentile or above on the composing subtests, where all three students showed initial levels of interest at level 3 (i.e., *somewhat interesting*) throughout the Forethought and Performance phases, and in two cases self-efficacy beliefs were equivalent to or higher than their level of interest at the Forethought Phase. Evidence from the interviews and the think aloud data indicated that all three of these students exerted more effort in response to feelings of difficulty; with profiles for all three students showing an inverse relationship between feeling of difficulty and self-efficacy. For instance, although all three students responded to feelings of difficulty by exerting more effort, changing strategies and/or increasing their level of interest, two of them showed increases in self-efficacy beliefs as soon as they recognized the effectiveness of their responses (*see #5 and #12*). However, although Participant #1 began the task with levels of self-efficacy and interest higher than her feelings of difficulty, her feeling of difficulty increased, and levels of self-efficacy and interest decreased at the final Self-Reflection phase because she did not like to revise. At this point she also realized that her story was not as good as she initially had thought because she had failed to include dialogue, and did not have enough time left to make substantial changes. Each of these students, however, reported general self-efficacy for writing in the average to above average range, prior to beginning the composing task. In each of these cases

self-efficacy may have acted as a moderator in the interaction between feeling of difficulty and effort exertion; (i.e., the higher the level of self-efficacy, the more effort and persistence the student may exert in response to challenges or feelings of difficulty). Each of these students also demonstrated heightened levels of interest that were sustained throughout most of the composing task. Interest may also have served as a moderator, in some cases possibly working in conjunction with self-efficacy, in the interaction between feeling of difficulty, effort exertion, and persistence with the task. Interactive relations between interest and self-efficacy were found for all students at all ability groupings, although they varied with each unique profile, as did levels of effort and persistence.

The current study also offers additional insight into the composing process as a series of self-regulatory events requiring a continuous process of applied metacognitive focus that is unique to each individual writer (Hacker et al, 2009). The unique profiles demonstrated for each of the nine student cases illustrate the composing process as a highly individualized self-regulatory process that is influenced at each stage by motivational factors, including self-efficacy beliefs, interest, and effort; by the affective factors of writing apprehension and feelings of difficulty; and by cognitive factors such as strategy use. The profiles for each student clearly demonstrated the interactive relations among writing apprehension, interest, self-efficacy, and feelings of difficulty; showing that writers are able to monitor and self-regulate their levels of interest, confidence and their strategy use in response to feelings of difficulty, or feeling “stuck” through increasing their levels of effort, changing, adjusting or implementing new strategies, or consciously trying to increase their levels of interest. The descriptive profiles also illustrated interactive, dynamic and complimentary relations between self-efficacy and interest, and highlighted students’ ability to effectively gauge and regulate their levels of interest in the

composing task; indicating that the ability to enhance level of interest may be an effective strategy for self-regulating and sustaining motivation during composing in response to feeling of difficulty.

Differences within and across ability groups have also allowed an examination of distinct self-regulatory challenges faced by students at low levels of writing ability, as well as students of average and above average ability. Interestingly, students who had diagnoses of learning disabilities and/or ADHD were found in each of the three ability groupings: one in the High performing group; one in the Average performing group; and three in the Low performing group. Although each student's profile was unique, the results revealed a few patterns across groups. Specifically, one pattern found among the high performing group was a relatively high level of sustained interest, and self-efficacy beliefs at levels higher than feelings of difficulty for 2 of the 3 students; factors which may have fueled students' motivation and effort exertion. In comparison, students in the Average performing group demonstrated levels of self-efficacy and interest that were lower than feelings of difficulty at the Forethought phase; with only 1 of the 3 students showing increases in interest and self-efficacy that rose above feelings of difficulty. Interestingly, levels of interest and self-efficacy appeared to be important factors that affected effort and persistence for students at all ability levels; even for those who struggled with the writing process. For instance, a total of five of the nine participants had been previously diagnosed with at least one learning disability; including Dyslexia, Dysgraphia; or Specific Learning Disability in Reading and/or Writing, and most had comorbid diagnoses, or an additional diagnosis of ADHD. The majority of these students indicated heightened levels of writing apprehension in addition to marked feelings of difficulty. However many of these students also demonstrated high levels interest, which appeared to fuel their concerted effort and

strategy use at some points during the composing task (*see also* #10; #14; and #11). In some cases students were able to successfully self-regulate their levels of interest, and exert additional effort; resulting in increases in self-efficacy, and corresponding decreases in feelings of difficulty. These findings demonstrate ways in which students are able to effectively self-regulate motivational and affective factors in response to feelings of difficulty. This finding has important implications for practice, and underscores the need for researchers to develop effective techniques for teaching students skills to self-regulate motivation and affect effectively.

Unfortunately, most of the student participants, including the highest performing students, indicated a lack of familiarity with effective composing strategies. However, all of the student participants demonstrated some type of strategy use, though most chose to use strategies with which they were already familiar, or which had personal meaning for them, and which also appeared to target a very specific challenge that arose during a specific phase or transition point of the composing task. This finding also highlighted the importance of helping students to enhance their self-regulatory skills, in addition to teaching specific composing strategies. A few previous studies, including ongoing research by Graham, Harris and Troia (2000); Harris, Graham and Mason (2006), using the Self-Regulated Strategy Development (SRSD) Model, has demonstrated the effectiveness of a writing model that incorporates the use of the self-regulatory strategies of goal setting, self-monitoring, self-instruction, and self-reinforcement with specific planning and revising writing strategies, to help struggling writers learn self-regulatory techniques. The SRSD model has resulted in improvements in written products and in levels of self-efficacy, especially for struggling writers, by explicitly teaching students to be more strategic and to implement specific types of self-regulatory techniques. However, the SRSD

model has not effectively developed a specific focus on teaching students to successfully self-regulate affect or motivation.

Findings from the current study based on Efklides' (2009) model, which demonstrates the role of feelings of difficulty in making students aware of problems to be addressed, can be used to develop effective techniques to teach students to learn to better self-regulate levels of negative affect and increase positive factors such as interest and self-efficacy, in order to enhance motivation as they work through challenging writing tasks. To date, because very few studies have examined composing from this perspective, the current study has provided a wealth of data with which to examine composing across a series of distinct self-regulatory phases that serves to highlight and elaborate the unique challenges that writers at a range of ability levels encounter.

Findings from this study also add valuable information to further elaborate the interrelations among motivational factors critical to the writing process, including self-efficacy beliefs, interest and self-regulatory skill, that have recently been determined to be "more interrelated than previously recognized" (Hidi & Boscolo, 2006, p. 154). For instance, evidence from this study demonstrated that levels of interest and self-efficacy beliefs would rise and fall at different phases of the composing task in contrast to feelings of difficulty; and some students would consciously attempt to self-regulate motivation by trying to increase their levels of interest in the composing task in response to the challenge of feelings of difficulty, resulting in heightened self-efficacy beliefs. The wealth of descriptive data from the current study offers a valuable addition to further research inquiry into the integrated relationships among cognitive, affective, and motivational components of the writing process (Hacker, Keener & Kircher, 2009; Hidi & Boscolo, 2006; Schunk & Zimmerman, 2007; Troia, 2006). In addition, findings from this study contribute to the newly raised question of how motivational regulation may be induced

by metacognitive experiences such as *feelings of difficulty* that serve to activate the use of metacognitive strategies (Efklides 2009, 2011); a question that had not previously been examined in relation to self-regulated writing.

Findings from this study also have important implications for the development of effective writing interventions. For instance, information gleaned from this study regarding the influence of writing apprehension and feelings of difficulty that create challenges for students at every level of ability, gives evidence that the composing process can be highly affectively and motivationally challenging; even for students whose performance is in the upper 10 percent of skill level. Additionally, evidence from the transcripts targeted specific breakdown points within the composing process that were similar for students at all levels of ability; specifically during initiating writing, and at transition points throughout composing, which appear to be areas of high challenge for most students. Evidence from this study may also be used to further develop interventions to help students enhance their self-regulatory skills in recognizing and responding to their specific areas of high challenge, as well as their break-down points in composing, and in enabling them to choose strategies to promote effective regulation of motivational and affective factors in addition to enhancing their skill with cognitive strategy use. Such intervention techniques could empower students to more closely and accurately monitor their own self-regulatory writing processes; to better target their areas of weakness and choose strategies or resources appropriate for self-correction and self-evaluation; thus promoting more effective self-regulated learning skills at all grade levels.

Limitations

The current study provides a rich, descriptive foundation of data regarding the unique self-regulatory composing process for individual student writers at varying levels of ability.

However, the nature and focus of this descriptive case study primarily offers a description of relationships among cognitive, motivational and affective factors, therefore causal inferences may not be drawn from the data. Additionally, although the sample size is relatively large for a multiple case study design, it is not a large enough sample to enable generalizations to a large population of students.

The one-on-one situation in the design of this study is also different than the typical classroom dynamic, in which the teacher may infrequently interact with individual students. During this study I met with each participant individually and followed a specific protocol throughout the course of the study that included introducing basic writing strategies prior to the five minute think-aloud practice session. Although the majority of participants, at each ability level, claimed to have little prior knowledge of composing strategies, they were given the choice of whether or not to use the basic writing strategies that were introduced prior to the think-aloud practice, including the TOWER mnemonic (*see appendix A*) and a planning writing (*see appendix B*) worksheet. During the research sessions, I administered the composing task to each of the nine participants in the same way, in as neutral a manner as possible. The composing task was timed and subtest scores were calculated, and the students were aware that their performance would be scored. However, the one-on-one research situation was in some ways different than a typical school setting, in which students may or may not be introduced to writing strategies prior to a composing task. It is also possible my presence may have influenced the students' level of persistence, however some students did refuse to revise during the self-reflection phase, so the level of influence is questionable. Future studies may benefit from examining the student's responses in isolation, without a researcher present.

Additionally, each participant was able to choose whether or not to use any writing strategies, an option that may or may not be offered in typical school settings, and which might enhance the level of persistence for struggling students. Findings from this study were focused on examining the writing process in depth at the level of the individual student, rather than across students in a classroom setting. However it may enhance student motivation if classroom teachers would introduce writing strategies prior to a composing task, and allow students to choose among the strategies that they each find most helpful.

Both quantitative and qualitative measures were analyzed to provide triangulation of data sources, with quantitative measures interpreted for descriptive purposes primarily. Different types of measurement instruments, both self-report and micro-analytic were calibrated slightly differently, however they were analyzed appropriately. For instance, micro-analytic measures that tapped self-efficacy, interest, and feelings of difficulty at different phases of the composing task were scored on a 5 point Likert scale, and reported in Participant Profile Graphs. Self-report measures that tapped Writing Apprehension, Self-Efficacy for writing and Prospective and Retrospective Feeling of Difficulty, were scored to be calibrated on a 6 point scale. Therefore, although increases and decreases in each of these factors were measured, the incremental units of measurement were not calibrated across all instruments.

Future Research Directions

Future research with larger samples, using advanced statistical analyses is required to further examine the causal relationships among feelings of difficulty, self-efficacy, interest and writing apprehension. Additionally, replication studies using multiple case-study designs would allow further examination of the unique profiles of individuals and groups of marginalized students, who may face heightened levels of motivational and affective challenge. Such groups

might include Latino populations or other minority students from low socio-economic backgrounds; students with specific types of diagnosed learning disabilities; or students who are considered to be twice-exceptional, having cognitive strengths coupled with specific learning disabilities. Individual profiles and cross-case trends for each of the aforementioned groups may yield rich evidence to support the development of interventions to target each of these students' unique and specific needs. Experimental studies designed to more closely examine the roles of interest and self-efficacy as moderator variables are also needed to further elaborate the complimentary relationship between self-efficacy beliefs and interest relative to feelings of difficulty. Specifically, studies could be designed to examine the causal effects of each these factors separately, and then in combination, to determine the magnitude of the influence of self-efficacy, as well as interest, upon effort exertion, implementation of strategy use, and regulation of motivation, in response to varying degrees of feelings of difficulty. Such studies may help to illustrate the differences between maladaptive self-regulatory responses to negative affect, and effective self-regulatory skills.

Conclusion

The current study has provided a rich foundation of evidence to support an integrated model of composing that unfolds as a series of self-regulatory events; in which specific cognitive, affective, and motivational factors, unique to the individual writer, interact at each self-regulatory phase, guided by the proactive agency of the writer (Hacker, Keener & Kircher, 2009; Hidi & Boscolo, 2006; Pajares & Valiante, 2006; Zimmerman & Risemberg, 1997). Findings from this study also offer support to theories of self-regulated learning that highlight the interactive roles of affect, motivation, and cognition as important to the key processes of metacognitive monitoring and control (Hidi & Ainley, 2008; Linnenbrink & Pintrich, 2003;

Pintrich, 2000; Schunk & Pajares, 2002; Zimmerman, 2008; Zimmerman & Cleary, 2009; Zimmerman & Schunk, 2008). Evidence from the descriptive profiles illustrated in this study offer examples in support of the complimentary, interactive relations among self-efficacy and interest; that have been theorized to enhance engagement in composing, and have been demonstrated to be essential to the self-regulatory process (Hidi, Berndorff & Ainley, 2002; Hidi & Boscolo, 2006; Schunk, 2003; Zimmerman & Schunk, 2008). Findings from this study also illustrate the role of feelings of difficulty in relation to self-efficacy and interest, and emphasize the role of feelings of difficulty (Efklides, 2009, 2011) as an important catalyst in self-regulated composing, that prompts the implementation of strategy use and increased effort. Further examination of the essential roles of interest and self-efficacy in facilitating self-regulation of affect and motivation in response to feelings of difficulty holds promise for developing methods to enhance student motivation in a wide range of learning tasks.

APPENDIX A: WRITING STRATEGIES

TOWER

T = Think up Topic and Ideas

O = Organize Ideas

W = Write a Draft

E = Elaborate, Evaluate, and Edit

R = Revise and Reread

APPENDIX B: PLANNING WRITING

- 1. TOPIC:** Think about the topic, and create a topic sentence.

BRAINSTORM: List your ideas related to the topic.

- 2. ORGANIZE:** Organize and structure the writing. Develop a mind-map or outline to organize your ideas.

- 3. WRITE:** Compose your story directly on the booklet provided.

- 4. EDIT:** (COPS): Remember to check Capitalization, Organization, Punctuation and Spelling.

5. REVISE and REWRITE: (ARMS): Add, Remove, Move or Substitute text to correct and polish your writing.

APPENDIX C: OFF TASK BEHAVIORS

Measure of Persistence Operationalized as “Off Task Behaviors”

Off Task Behaviors

Time allotted for writing composition task: 20 minutes.

Note number of times during 20 minute segment, that student displays Off Task Behaviors.

Off Task Behaviors

Frustration Level Rating

Interruptions in

Task Processing

Record number of indications

Record number of interruptions

of Frustration within each phase of

within each phase of

Composing Task:

Composing Task:

Planning: _____ Planning: _____

Composing: _____ Composing: _____

Revision:_____ **Revision:**_____

APPENDIX D: SEMI-STRUCTURED EXIT INTERVIEW

1. Please list the different strategies that you chose to use during the composing task, and describe how they helped you.
2. How did you decide whether or not to use these particular writing strategies during the composing task?
3. Did you feel anxious or apprehensive during the composing task? Why, or why not?
4. How interested were you in writing the story that you were composing? Did your level of interest change while you were working on the story? Why, or why not?
5. How confident were you that you could write a good story? Did your level of confidence change while you were working on the story? Why or why not?
6. Did you feel that this task was difficult? Why or why not? Did the feeling of difficulty change during the task? If so, how did it change and do you know why it changed?

APPENDIX E: QUESTIONNAIRE

1. Name: _____
2. Age / Birthdate: _____
3. Grade in School: _____
 - a. Have you ever been retained in a grade? Yes _____ No _____
4. Scores on N.C. Writing Tests (if known):
 - a. 5th Grade: _____
 - b. 7th Grade: _____
5. Have you ever been diagnosed with any of the following?
 - a. ADD or ADHD Yes _____ No _____
 - b. Dyslexia Yes _____ No _____
 - c. Dysgraphia Yes _____ No _____
 - d. S.L.D. – Specific Learning Disability in Reading or Writing
Yes _____ No _____
 - e. Autism Spectrum disorder
Yes _____ No _____
6. Do you have an active I.E.P. or 504 Plan in place at your school?
 - a. If so, for what subject areas? _____
7. What is the highest level of Education that your parents have attained?
 - a. High School Diploma Mother Father
 - b. Undergraduate Degree Mother Father
 - c. Graduate Degree Mother Father

8. Please check your race/ethnicity:

- a. Hispanic/Latino (of any race)_____
- b. Not Hispanic/Latino _____
- c. White (alone) _____
- d. Black/African American (alone)_____
- e. Asian (alone)_____
- f. American Indian/Alaskan native (alone)_____
- g. Native Hawaiian/Pacific islander (alone)_____
- h. Other race (alone) _____
- i. Two or more races _____

9. Please circle your estimated annual household income:

-
- a. Less than \$10,000
 - b. \$10,000 - \$14,999
 - c. \$15,000 - \$24,999
 - d. \$25,000 - \$34,999
 - e. \$35,000 - \$49,999
 - f. \$50,000 - \$74,999
 - g. \$75,000 - \$99,999
 - h. \$100,000 - \$149,999
 - i. \$150,000 - \$199,999
 - j. \$200,000 or more
-

Researcher Use Only:

TOWL – 4 Screening: _____

WISC-IV Screening: _____

Vocabulary: _____ Matrix Reasoning: _____

APPENDIX F: IRB APPROVAL LETTER

Hutchison, Leigh Anna

From: IRB <irb_no_reply@unc.edu>
Sent: Wednesday, May 06, 2015 9:33 AM
To: Hutchison, Leigh Anna
Cc: Greene, Jeff
Subject: IRB Notice

To: Leigh Anna Hutchison
School of Education Deans Office

From: Non-Biomedical IRB

Approval Date: 5/05/2015

Expiration Date of Approval: 5/04/2016

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)

Submission Type: Renewal

Expedited Category: 6.Voice/image research recordings,7.Surveys/interviews/focus groups

Study #: 13-3353

Study Title: Self-Regulated Learning in Context; Interplay of Cognition, Motivation and Affect in the Composing Process.

This submission has been approved by the IRB for the period indicated.

Study Description:

Purpose: To examine the student writing process as a series of self-regulatory events requiring continuous metacognitive monitoring, control and adaptation on the part of the writer; allowing a detailed investigation and analysis of the reciprocal interactions of motivational, cognitive and affective factors as writers self-monitor and make control decisions regarding initiation or adjustment of strategies, and regulation of effort when facing challenges and experiencing difficulty in the composing process.

Participants: Six middle school age students (3 males and 3 females) selected from a pool of 15 volunteers from schools in the Southeast US.

Procedures: Participants will work individually with the researcher on a self-regulated writing task. First, they will complete a pre-assessment screening that will include two subtests from the WISC-IV, in addition to completing the TOWL-4. Next, participants will schedule a session to participate in the actual study, which will involve an entrance interview, practice with a think-aloud protocol, completion of the spontaneous writing task (TOWL-4), and an exit interview followed by a short debriefing session.

Measures: The overarching question of how motivational, cognitive and affective factors interact within the self-regulated composing process will be addressed through the use of measures to tap cognition, motivation and affect at different stages throughout the composing process. A variety of sources of evidence will be used for data collection (Yin, 1984), including self-report data, interviews, observations, think-aloud data, and micro-analytic measures.

Measures of motivation constructs will include: interest, self-efficacy beliefs, and levels of effort and

persistence. Measures of affect will include writing apprehension, and feelings of difficulty. Cognitive strategies will be analyzed through observation of strategies used by students throughout the composing task. The composing task will be structured in phases, similar to general writing instruction. However, at each phase of composing, micro-analytic measures of self-efficacy beliefs, interest, and feeling of difficulty will be administered to each participant at the three key points in the self-regulatory process: before (Forethought Phase), during (Performance Phase), and after (Self-Reflection Phase) the composing task (Kitsantas & Zimmerman, 2002; Zimmerman, 2008).

Regulatory and other findings:

This research, which involves children, meets criteria at 45 CFR 46.404 and/or 21 CFR 50.51 (research involving no greater than minimal risk). Permission of one parent or guardian is sufficient.

This research is closed to enrollment and remains open for data analysis only.

Investigator's Responsibilities:

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator's responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.

Your approved consent forms and other documents are available online at http://apps.research.unc.edu/irb/index.cfm?event=home.dashboard.irbStudyManagement&irb_id=13-3353.

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented. Any unanticipated problem involving risks to subjects or others (including adverse events reportable under UNC-Chapel Hill policy) should be reported to the IRB using the web portal at <http://irbis.unc.edu>.

The current data security level determination is Level II. Any changes in the data security level need to be discussed with the relevant IT official. If data security level II and III, consult with your IT official to develop a data security plan. Data security is ultimately the responsibility of the Principal Investigator.

This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), 45 CFR 164 (HIPAA), 21 CFR 50 & 56 (FDA), and 40CFR 26 (EPA), where applicable.

CC:

Jeff Greene, School of Education Deans Office
IRB Informational Message - please do not use email REPLY to this address

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