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University of Southampton

Faculty of Arts and Humanities

Languages, Cultures and Linguistics

**Writing Persistence: Investigating the Interplay between Saudi EFL Profiles of Grit,
Buoyancy and Self-efficacy and their Impact on Writing Achievement and Working
Memory Functions**

by

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Thesis for the degree of Doctor of Philosophy

November 2024

University of Southampton

Abstract

Faculty of Arts and Humanities Languages, Cultures and Linguistics

Doctor of Philosophy

**Writing Persistence: Investigating the Interplay between Saudi EFL Profiles of Grit,
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Memory Functions

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Good grades and innate talent alone cannot adequately capture how individuals maintain effort and remain motivated, especially when confronted with difficulties. Within the context of language learning specifically, optimal functioning is often embedded in learner positive adaptation and abilities to overcome language learning difficulties (Chu, Yan, Wang, & Liu, 2024; Shin & Kim, 2017). In this regard, concepts centred around optimal functioning are widely considered significant predictors of general language learning outcomes (Yun, Hiver, & Al-Hoorie, 2018; Alhadabi & Karpinski, 2020; Teimouri, Plonsky and Tabandeh, 2020). Yet, research investigating these concepts at a skill level, especially L2 writing is mostly scarce. The available literature so far provided mixed findings concerning the definitions and structures of notions such as academic persistence (DiNapoli, 2023), grit (Clark & Malecki, 2019; Datu, Yuen, & Chen, 2018b; Duckworth, Peterson, Matthews, & Kelly, 2007), and buoyancy (Martin, 2013; Sudina & Plonsky, 2021), typically relying on quantitative measures only. Nonetheless, recent

evidence affirmed the cognitive-affective dimension to the study of academic optimal functioning (Chu et al., 2024; Luthans, Luthans, & Chaffin, 2019).

This mixed-methods study aimed to challenge the ambiguities surrounding concepts embedded within learner optimal functioning to overcome language learning difficulties. Drawing on the Psychological Capital (PsyCap) that supports the cognitive-affective dimension involved in optimal functioning, this thesis was guided by four research questions to identify learner archetypes of grit, buoyancy and self-efficacy in terms of writing performance and performance in working memory (WM) tasks of 60 first-year female English major undergraduates in Saudi Arabia. Specifically, it examined the impact of the identified learner profiles of grit, buoyancy and self-efficacy on their writing scores and performance in WM tasks, and how these profiles shaped learners' understandings and experiences of the examined constructs. To this end, the thesis utilised self-report questionnaires, Cloze tests, working memory tasks, and interviews. Accordingly, the data were analysed using cluster analysis to detect naturally existing groups within the data based on similarities among groups relevant to the measured variables together with analysing salient themes. The cluster analysis revealed four learn profiles based on differences in writing scores, consisting of high or low across grit, buoyancy and self-efficacy, high in grit but low in other variables, and high in grit but relatively moderate across the other variables. Nonetheless, in terms of performance in WM, all the identified profiles, did not manifest statistically significant mean differences in relation to their performance in WM tasks. The findings of the interviews revealed that the cluster profiles exhibited different understandings of academic persistence in writing as members belonging to the High clusters expressed more diverse understandings compared to the restricted understandings of participants in the low cluster. The findings further suggest that the identified clusters perceived grit in relation to determination while buoyancy was seen relative to proactive coping. Findings further imply that self-efficacy is essential for understanding the relationship between L2 academic persistence and writing achievement. Specifically, members within the High clusters demonstrated high writing scores and displayed positive fluctuations in their efficacy beliefs.

Taken together, the results supported the need to recognise learner inherent characteristics in the study of academic persistence, as well as understand learners' perceptions of persistence in writing. The cluster-centred approach combined with qualitative evidence offered insights into the cognitive-affective dimension of academic persistence constructs, challenging the prevailing focus on mainly testing correlations. By recognising the central role of the learner learning strategies within the framework of psychological capital, future L2 research can interrogate whether learner psychological resources and learning strategies can contribute to the multi-factorial system of academic persistence; L2 teachers and educators can potentially better promote learner optimal functioning by capitalising on learner resources and learning strategies.

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Research Thesis: Declaration of Authorship

Print name: Rehab Alowayid

Title of thesis: Writing Persistence: Investigating the Interplay between Saudi EFL Profiles of Grit, Buoyancy and Self-efficacy and their Impact on Writing Achievement and Working Memory Functions

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission #or# Parts of this work have been published.

Signature: Date:.....

Acknowledgements

Completing this research project felt like an insurmountable challenge. From day one, the PhD journey presented significant challenges, leading me to realise the rollercoaster of growth at all levels. Each morning served as a fresh reminder that I could push through the day as a mother, student, and researcher, armed with patience, grit, buoyancy, and self-efficacy. I held onto my mother's advice that diamonds are made under pressure. Engaging in this PhD research helped me see the opportunities before me by prompting me to question my persistence daily. It reminded me to trust myself and commit to progress, allowing me to overcome the traps of perfection and test my grit, buoyancy, and self-efficacy.

This thesis would not have been possible without the unwavering support, insightful comments, and guidance of my supervisors, Dr Alison Porter and Ms Linda Hurley. I am deeply grateful to them, as well as to my sponsor and everyone who contributed to this research in any way, providing advice, assistance, access to the research site, and dedicating their time to my study. My heartfelt thanks also go to my thesis examiners, Dr Christina Gkonou and Dr Duygu Candarli, for their constructive comments, which greatly enhanced the quality of my thesis. I am forever thankful to the catalysts for my resilience: my mother, sisters, husband, and beautiful children. My gratitude extends also to my friend Samah Alsufiany. This thesis is dedicated to my family and to the spirit of my father.

Amid the unavoidable adversities of my long PhD journey, I lost many close relatives to whom I could not say final goodbyes. To my uncle and my mother-in-law: it truly hurts that you are no longer physically present, that I cannot hear your voices or see your comforting smiles. Nevertheless, your spirits have been with me during some of my darkest moments, reminding me to pursue my dreams, navigate through failure and loss, and believe in my ability to embark on this journey of persistence to realise the infinite possibilities ahead of me. The PhD

Acknowledgements

experience has been transformative, teaching me to embrace the unpredictable and rise beyond what my eyes can see.

Abbreviations

ABS.....	Academic Buoyancy Scale
AGS	Academic Grit Scale
ANOVA	Analysis of Variance
CFA	Confirmatory Factor Analysis
EFA.....	Exploratory Factor Analysis
EFL	English as a Foreign Language
ESL	English as a Second Language
GPA	Grade Point Average
Grit-O	Grit Original Scale
Grit-S.....	Grit Short Version
L2	Second Language
L2WSS	Second Language Writer Self-Efficacy Scale
LSE	Linguistic Self-efficacy
PS.....	Performance Self-efficacy
PsyCap	Psychological Capital
RTs	Reaction Times
SRE.....	Self-regulatory efficacy
TA.....	Thematic Analysis
WM.....	Working Memory

Abbreviations

Chapter 1 Introduction

1.1 Academic Resilience in Second Language Learning:

Positive functioning in the face of difficulties and challenges is often grounded in the notions of resilience, perseverance, persistence, grit and buoyancy. While operationally these concepts are widely used interchangeably, some studies demarcated subtle differences among concepts of academic resilience, especially in the context of mathematics (DiNapoli, 2023; Martin & Marsh, 2006, 2009). These studies emphasise short-term resilience or buoyancy, pinpointing that short-term resilience can develop to long-term or grit. Other studies have equated resilience with the perseverance of effort dimension of grit (Cheng, Kam, & Cui, 2023).

Pioneering researchers, focusing on general resilience such as Ann Masten perceived resilience as a multifaceted system in terms of both adversity and resources (Masten, 2001). For Masten (2001) resilience is grounded in “... the everyday magic of ordinary, normative human resources in the minds, brains, and bodies ...” (p. 235). This conceptualisation foregrounds the role of human resources in theorising positive functioning. The importance of defining resilience from the multi-dimensional system is also highlighted in educational research. In his Motivational Wheel focusing on both students’ motivational strengths or boosters and weaknesses or guzzlers, Martin (2002) argues that a multi-dimensional approach is necessary to understand academic resilience. In a similar vein, Skinner, Graham, Brule, Rickert, and Kindermann (2020) argue that a holistic view of academic resilience must encompass the underlying cognitive, metacognitive, motivational, and attentional processes that contribute to students' ability to thrive in educational settings.

Within the realm of language learning research specifically, academic resilience is considered as a multi-dimensional construct and typically defined in relation to learners positive adaptation and abilities to overcome language learning difficulties (Chu et al., 2024; Shin & Kim, 2017).

Unlike general resilience in relation to overcoming extreme adversities, academic persistence is

construed as an overarching concept that encompasses grit and buoyancy (Sudina & Plonsky, 2021). This suggests that the term academic persistence may offer better understanding of the multi-system involved in student thriving in language learning, hence preferred in this thesis. Findings from recent research suggest links between language learner characteristics of academic persistence and their achievements in relation to language learning (Teimouri, Tabandeh, & Tahmouresi, 2022; Yun, Hiver, & Al-Hoorie, 2018). Many researchers now stress on the importance of promoting academic resilience among language learners (Chu et al., 2024). Despite the continuous emphasis on concepts of resilience, there still remains an ambiguity concerning the intricate nature of academic resilience and the multiple interrelated processes involved within this construct, how conceptually related concepts of persistence are perceived and measured, and how learner characteristics of these variables may affect their academic achievement outcomes within specific language domains, especially in relation to L2 writing in the Arab context. With notably little research conducted specifically among Saudi Arabian student population. For population in this context, English language, mainly writing, has proven to pose serious challenges for students (Al-Nafjan & Alhawsawi, 2022; Alghammas, 2020). Therefore, this thesis explores the multifaceted nature of academic resilience, addressing conceptually relevant concepts of academic resilience and how they affect writing achievement outcomes and performance in working memory (WM) among Saudi female first-year undergraduates. This chapter introduces and defines the research constructs and briefly presents the research questions and objectives. It concludes with an overview of the thesis structure and organisation. By theorising resilience based on the psychological capital and the motivational wheel frameworks, this thesis seeks to investigate the multifaceted nature of learner resilience in relation to L2 learning outcomes.

1.1.1 Research Rationale: a focus on academic persistence and its relevant constructs in EFL writing

The way learners remain persistent regardless of setbacks is typically viewed in relation to persistence-related constructs such as grit and buoyancy (Yang, Azari Noughabi, & Jahedizadeh, 2022). These researchers found that such motivational drives can contribute to EFL learners' self-efficacy, affecting how they maintain effort, remain motivated and handle difficulties. Still, the definition of persistence-related constructs is elusive in the literature because of the conceptual overlap among the constructs (Salisu, Hashim, Mashi, & Aliyu, 2020). This overlap becomes particularly noticeable in the use of conceptually relevant constructs to account for persistence and resilience, including grit (Duckworth et al., 2007) and buoyancy (Martin & Marsh, 2008). It is essential to note that the ideas around general and academic resilience are remarkably different, with the former referring to a far broader range of life events as experienced normally by disadvantaged groups, while the latter is likely to be experienced by students in dealing with academic problems (Martin & Marsh, 2006). Specifically, general resilience is relevant to chronic underachievement or consistent alienation whereas academic resilience is akin to efforts to persist in dealing with 'threats to confidence' and 'dips in motivation' (Martin & Marsh, 2009, p. 475). Similarly, Tinto (2017) perceives persistence as a synonym for motivation and powerfully argued to approach it as it is seen and vocalised by learners. This is highly relevant to the approach taken by Martin and Marsh (2009) towards persistence, which they examined in terms of motivation and confidence.

This inconsistent depiction surrounding persistence-related concepts may be attributable to the interdisciplinary nature of these constructs within the state-trait continuum, often depending on whether they are operationalised from fixed personality and entity perspectives or holistically in the sense of psychological or incremental motivational resources (Luthans, Avolio, Avey, & Norman, 2007; Luthans et al., 2019; Satchell, Hoskins, Corr, & Moore, 2017). In connecting motivation and psychology research in relation to language learning, Dornyei and Ryan (2015) criticised research in this field— particularly concerning personality and second

language learning— as ‘less-than-satisfactory’ (p. 34). They asserted that personality related factors and SLA research can reveal significant empirical results only when SLA research expands its examination of motivation processes beyond the extraversion versus introversion dimensions of the Big Five Model.

Yet, there is no consensus in the current literature regarding the definitions and dimensions of concepts of persistence. The vague definition of persistence as a multifaceted construct, for instance, has the potential to render persistence as an all-fitting construct with the same constructs delineated differently such as grit— regarded as dual (Duckworth et al., 2007), singular (Clark & Malecki, 2019; Tang, Zhou, Du, Mo, & Xing, 2022), and even triple in some studies (Datu et al., 2018b). The inconsistency is also apparent in relation to academic buoyancy. While the literature linked academic buoyancy to the idea of individuals’ adaptive responses to academic setbacks to sustain motivation (Al-majd & Belton, 2024; Friala, Gales, Uy, & Montano, 2023; Yun et al., 2018), few studies drew a distinction between adaptive coping and academic buoyancy (Putwain, Daly, Chamberlain, & Sadreddini, 2015). In addition, academic buoyancy was originally demonstrated as a unidimensional construct. Nonetheless, studies examining academic buoyancy in terms of foreign language learning established a two-facet structure of academic buoyancy: dealing with study stress and coping with poor grades and criticism (Sudina & Plonsky, 2021). Such complexities may stem from the predominant emphasis of current research on broad academic and language persistence, overlooking the intricacies inherent in persistence within a specific language domain such as writing. Previous research, for example, confirms that grit and resilience remain significantly underexplored within the domain of L2 writing (Shafiee Rad & Jafarpour, 2023). Similarly, academic buoyancy in L2 writing is notably overlooked in current research (Xu & Wang, 2023). It seems unrealistic thus to oversimplify the meaning and structure of persistence, especially within domains that inherently pose unique challenges. This study endeavours to resolve this by unravelling the nuanced nature of persistence-related constructs within the domain of academic writing. While academic persistence and academic self-efficacy are viewed by many as predictive of positive

outcomes such as alleviating negative influences induced by challenges and setbacks (Alhadabi & Karpinski, 2020), enhancing academic performance and achievement (Sudina & Plonsky, 2021; Teimouri, Plonsky, & Tabandeh, 2020), and promoting language learning (Sudina & Plonsky, 2021; Teimouri et al., 2020), it remains unclear how persistence-related constructs among EFL university students during their first year of study may affect their self-efficacy beliefs, strategic efforts and academic performance with respect to their writing skills. The dearth of both empirical and theoretical research on academic persistence within specific language skills among EFL university students in general, and first-year Saudi students to be specific, has provided strong impetus for the current study.

Thus, this study focuses on grit, buoyancy and self-efficacy among Saudi undergraduates, seeking in particular to address the connection between learners' profiles of grit, buoyancy and self-efficacy and their writing scores while addressing learners' perceptions of the examined constructs. This is important, as previous studies have identified the writing skills of Saudi university students as being generally below the standard expected for EFL/ESL university students (Alharbi, 2019; Gaffas, 2019). Alkodimi and Al-Ahdal (2021) further recently affirmed that Saudi undergraduates have poor writing skills as a result of the extreme emphasis of their writing classes on accuracy, making this a national problem in Saudi to the extent that writing classes in tertiary institutions have the lowest attendance rates of all classes. They further note that, while there is a substantial body of research around Saudi writing skill problems, there is still a notable gap between current educational aims and learning outcomes concerning writing skill. To address this gap, these researchers call for exploring factors such as writing motivation, suggesting that the available research base may illuminate the writing problems Saudi undergraduates may encounter while failing to explain why such problems exist. In response to this, the current study seeks to develop a better understanding of persistence-related constructs in relation to Saudi undergraduates' writing skills. First-year undergraduates are the target subject of the study because achievement during the first year of university has been reported as a significant predictor of both retention and academic success among Saudi

students (Bagabir, Zaino, Abutaleb, & Fagehi, 2021). Students' performance and course grades during the first year of university are vital indicators of how students are likely to proceed when university demands increase over their course durations (Tinto, 2017).

In addition, the study is inspired by my ongoing personal academic experience of studying in the United Kingdom— given that all my previous educational endeavours were exclusively within the remits of my home country. Academic obstacles arose almost immediately after my initial encounter with the taught modules and grading system, prompting me to doubt my gritty self and confidence. I struggled to make sense of my perplexing experience, so I embarked on a long and winding journey to comprehend my study topic, seeking probable solutions from my literature readings and supervisors. Initially, I studied coregulation in relation to academic writing and submitted my first-year report around this topic. I was introduced to the concepts of academic grit and buoyancy after several supervisory sessions. While I am aware of the importance of persistence, I have never attempted to comprehend the plethora of related concepts that may explain how and why individual unique elements may influence learning outcomes, especially in difficult conditions. Focusing on components of learner persistence in relation to L2 writing is thus hoped to assist me in the discovery and promotion of my evolving gritty and efficacious self, while at the same time addressing the serious research neglect of persistence-related constructs within ESL/EFL research, particularly in relation to L2 writing achievement.

1.2 The Current Study: defining terms

To establish a foundation for exploring learner academic persistence coherently, this section operationally defines key concepts essential to persistence as investigated in this study. Unlike general resilience in relation to overcoming extreme adversity, academic persistence is construed as an overarching concept that encompasses grit and buoyancy (Sudina & Plonsky, 2021). Martin and Marsh (2003) define academic persistence in relation to the ways learners maintain effort in spite of challenges and difficulties. In this study, academic persistence refers

to academic grit and buoyancy when handling long- and short-term L2 writing difficulties. As a general term, grit refers to perseverance and passion for long-term goals (Duckworth et al., 2007). However, Clark and Malecki (2019) distinguish between general and academic grit by defining the latter as a skill characterised by determination, focus and persistence in the face of academic challenges to achieve long-term goals. Language-specific grit is conceived as persistence of English language learners in relation to their language learning behaviours and achievement (Teimouri et al., 2020). In this study, grit refers to EFL learners' persistent effort in the face of writing challenges to achieve L2 writing outcomes. Academic buoyancy refers to responding to everyday academic setbacks, challenges, and difficulties or coping with everyday ups and downs (Martin, 2013; Martin & Marsh, 2008). Throughout this study, academic buoyancy is defined in relation to the responses that learners exhibit to overcome writing difficulties during performance and sustain motivation— may not necessarily require determination or focus. While there is notably a lack of definitional precision concerning grit and buoyancy, these concepts are often intricately distinguished with respect to commitment to achieving proximal versus distal goals. This implies that to comprehend long-term determination during setbacks, it becomes necessary to articulate the short-term processes of staying afloat. Understanding short-term motivational mechanisms is critical to discern long-term factors that contribute to academic success or failure (Kosovich, Flake, & Hulleman, 2017).

Another key construct pertinent to this study is L2 writing self-efficacy. According to Teng, Sun, and Xu (2017), L2 writing self-efficacy is a three-dimensional construct that refers to L2 learners' confidence in their own writing or their self-judgments of their linguistic knowledge with respect to composition processes, their ability to perform well in writing, and their ability to use self-regulatory strategies to overcome any writing difficulties. What seems unique about this definition is that it was largely developed to amalgamate views of social cognitive theory and self-regulation theory. For this study, the term writing self-efficacy is thus used to refer to EFL learners' subjective judgments and self-evaluations of their capabilities to perform adequately

in academic writing. Generally, L2 self-efficacy research has largely perceived self-efficacy in relation to confidence beliefs that learners have regarding their overall capabilities to perform learning tasks (Alluhaybi, 2015, 2021; Mendoza et al., 2022; Sun et al., 2021; Teng et al., 2017). The major dependent variable in this study is elucidated in the term writing achievement outcomes. Within the context of this study, the term refers to students' final writing course grades and not their overall GPAs. In studying L2 self-efficacy as a predictor of language performance, Alluhaybi (2021) defined achievement outcomes in relation to students' grades in English.

1.3 Research Problem and Significance

Within the research landscape of academic persistence, there is usually a noticeable disparity surrounding the definition and dimension of academic persistence. Despite the burgeoning body of research on persistence, studies continue to predominantly dissect persistence-related constructs individually rather than collectively, providing an inconsistent and fragmentary picture of terms and measurements (Teimouri et al., 2020; Yun et al., 2018). While grit literature has mostly been concerned with the study of general or non-domain specific persistence, few studies have investigated grit in L2 contexts, including in Japan focusing on a particular domain such as reading habits (Kramer, McLean, & Shepherd Martin, 2018), general language achievements (Yamashita, 2018), and those in Thailand (Changlek & Palanukulwong, 2015), and China (Wei, Gao, & Wang, 2019; Wei, Liu, & Wang, 2020). Even so, the general trend among these studies has been the adoption of the general grit measures rather than a measurement that specifically focuses on language learning. Similarly, academic buoyancy has been mainly emphasised as being a strong predictor of achievement with respect to general outcomes across mathematics, science, and physical education (Malmberg, Hall, & Martin, 2013), and general language outcomes (Colmar, Liem, Connor, & Martin, 2019; Yun et al., 2018) rather than within a specific language domain such as writing.

At its centre, research on the connection between grit and buoyancy makes it clear that L2 learners with greater self-efficacy are more likely to stay afloat and put more effort to overcome language challenges (Yang et al., 2022). While clearly persistence-performance relationship is best understood through self-efficacy (Graham, 2022), little has been done to examine the intricacies of persistence-related constructs and how relevant constructs may predict achievement at a specific language skill domain that is often deemed challenging. It is still unknown whether L2 learners display different profiles of the examined constructs of positive functioning and whether their distinct profiles may affect their performance, especially in terms of navigating challenges posed by writing. Findings from previous research on the relationship between the level of grit (Dehkordi, Jabbari, & Mazdayasna, 2021) and buoyancy (Yun et al., 2018) and overall L2 achievement suggest the connection between learners' characteristics and their L2 achievement outcomes. Previous evidence further reports relationships between the different patterns of self-efficacy that L2 learners exhibit and their emotions and performance in language tests (Wang, Shen, & Yu, 2021). Moreover, self-efficacy, specifically, is put forward as the driver of persistence in language learning (Graham, 2022). These findings raise questions around whether grit is a stronger predictor of writing achievement outcomes than buoyancy and self-efficacy, and whether they collectively predict achievement outcomes equally. If, as Tinto (2017) argues, persistence can be understood and improved through investigating how persistence is voiced and perceived by learners, then what does persistence mean to students?

The significance of this study thus lies in its attempts to fill gaps in theory, methodology and practice. As for theory, grit and buoyancy have rarely been studied collectively based on the perspective of psychological capital. Traditionally, exploring the interrelationships among conceptually relevant constructs of persistence was primarily approached from the theoretical groundings of grit or buoyancy. While most of the existing studies have examined the predictive power of these constructs in explaining variance in students' overall performance based on GPAs, this study uniquely adopts a novel theoretical framework to profile learners in terms of

their characteristics of grit, buoyancy and self-efficacy based on their writing scores and to test the cognitive-affective dimension of these constructs.

In terms of methodology, grit and buoyancy have mostly been studied separately and quantitatively. As for grit and buoyancy, only few studies seem to have investigated these constructs together as predictors of overall learning outcomes (Fong & Kim, 2019; Sudina & Plonsky, 2021). While these studies failed to demonstrate grit and buoyancy in regard to specific skills or domains, they concluded that these constructs are conceptually distinct. However, the two studies were inconsistent in testing the factor structure, particularly for the buoyancy scale. Although Fong and Kim's study employed the original unidimensional buoyancy scale, Sudina and Plonsky considered buoyancy as consisting of two dimensions. The disparities in defining the structures of academic grit and buoyancy may emphasise the need for a contextual understanding of these constructs within specific domains and contexts. Thus, utilising a mixed-methods design may best minimise complexity in conceptualisations and measurements of persistence-relevant constructs and provide unique insights of their potential impact on writing achievement outcomes.

In relation to practice, the reviewed literature demonstrates that non-linguistic factors, including grit, buoyancy, and self-efficacy, may strongly lead to improvement in learning outcomes. These reported interrelationships suggest that teachers should be aware of the importance of these factors by getting to know the nuances within students' persistence. Such awareness may reshape language pedagogy to adequately address students' distinct needs. This implies that a balanced emphasis of linguistic and non-linguistic factors in language instruction in general and writing in particular may open new avenues for the evaluation of current teaching approaches to better align with learners' different profiles. A deeper understanding of the interplay between learner linguistic or knowledge attainment and the individual dimension of how learners keep going when faced with language difficulties may enable teachers to tailor their teaching practices to align with students' diverse needs.

Consequently, this study may provide several important theoretical, methodological, and empirical contributions.

1.4 Research Objectives and Questions

To address the existing paradox in conceptualising academic persistence and its relevant concepts, this study investigates the multiple underlying dimensions of academic persistence. Specifically, it examines the interplay between grit and buoyancy, and the impact of self-efficacy on these constructs and their potential influence on achievement specific to the domain of writing among first-year Saudi female undergraduates. It further analyses the potential links between academic persistence and WM functions. Therefore, the aim of the study is threefold:

1. To identify learners' profiles based on the characteristics of grit, buoyancy, and self-efficacy in relation to writing outcomes.
2. To test the cognitive-affective dimension of academic persistence by examining the links between the identified learners' profiles and their writing scores as well as their performance in WM tasks.
3. To explore the experiences and perceptions of the target population regarding the investigated constructs.

Accordingly, the investigation is guided and directed by four key research questions:

1. What learner profiles can be identified based on learner characteristics of grit, buoyancy, and self-efficacy in relation to writing outcomes?
2. To what extent does learner performance in the writing course differ based on their profiles of constructs of academic persistence and self-efficacy?
3. To what extent does learner performance in WM tasks differ based on their profiles of constructs of academic persistence and self-efficacy?

4. What roles do students' profiles of grit, buoyancy and self-efficacy play in shaping students' persistence in writing based on how members of the identified profiles:
 - a) *perceive academic persistence;*
 - b) *experience academic persistence;*
 - c) *identify the role of their confidence?*

The quantitative component of the study aims to examine whether first-year Saudi female undergraduates exhibit different patterns of persistence-related constructs based on their writing final scores. Previous research has emphasised the importance of investigating persistence-related constructs such as grit by considering both cognitive and noncognitive learner dimensions and identifying learner archetypes (Aguerre, Gómez-Ariza, & Bajo, 2022; Maaliw et al., 2022). Recent research on academic buoyancy has also identified five L2 buoyancy profiles of Korean English learners at tertiary-level. Three L2 grit profiles were also prominent among EFL university students in Iran (Dehkordi et al., 2021). The findings of these studies further reported relationships between learner grit/buoyancy profiles and L2 achievement outcomes.

In addition, previous research has suggested positive correlations between academic grit and students' self-efficacy (Alhadabi & Karpinski, 2020); and between self-efficacy and motivation and L2 buoyancy (Yun et al., 2018). Meanwhile, there is no specific findings establishing the relations between these constructs and L2 writing self-efficacy. In addition, the findings of past research concerning the links between WM functions and persistence-related constructs, especially grit, were inconsistent. While some past research has identified a relationship between grit and WM executive functions in relation to writing performance (Liao & Chen, 2022; Zhang & Zhang, 2023), and between self-efficacy and performance in cognitively challenging tasks (Autin & Croizet, 2012; Hoffman & Schraw, 2009), few studies reported that grit did not contribute to enhanced performance in WM (Aguerre et al., 2022). Therefore, the second and third questions aim to demystify this paradox by assessing the relationship between learners' grit, buoyancy and self-efficacy profiles and their performance in writing and WM tasks.

The objective of the fourth question is to advance the understanding of the complex meaning and structure of the studied persistence-related constructs through exploring the unique experiences of members of the identified profiles. Evidence from previous research suggests extending the investigation of academic persistence and its relevant constructs beyond correlational testing through investigating learners' perceptions (Datu, Yuen, & Chen, 2016; Tinto, 2017).

1.5 Summary and Study Organisation

This chapter has introduced academic persistence, its relevant constructs, and drivers, focusing specifically on grit, buoyancy and self-efficacy within the domain of L2 writing. It provides the background of the study, outlining critical theoretical and empirical gaps in the literature. The chapter further defines key concepts used throughout the study while highlighting the research problem, its aims and significance, and the research questions that guided the investigation. The chapter closes by outlining the organisation of the overall thesis. To this end, this thesis is organised in six chapters. Building on Chapter One that provided the rationale and the scope of the study, Chapter Two reviews the relevant literature and identifies gaps in relation to the examined constructs in the contexts of L2 and the domain of writing, drawing upon the psychological capital, grit, buoyancy, and self-efficacy frameworks. Chapter Three delineates the mixed-methods research design, including the research setting, participants, data sources, data analysis procedures, methodological limitations, and ethical considerations. Chapter Four provides the results of the cluster analysis and further examines links between the identified grit, buoyancy and self-efficacy clusters and the writing scores and WM performance of members of the clusters. Chapter Five reports the findings from the analysis of the interviews, discovering the unique experiences of members of the clusters concerning grit, buoyancy and self-efficacy in relation to their writing skill. It further integrates the insights from the interviews with the results of the cluster analysis to develop a well-rounded understanding of the identified learner archetypes, offering more insights into the links between learners' characteristics of grit,

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buoyancy and self-efficacy and their writing achievement outcomes. Chapter Six discusses the key findings and implications of the study in relation to the research questions and the relevant literature. It highlights the contributions and acknowledges the limitations of the study while providing several suggestions that can guide the directions of future relevant research.

Chapter 2 Literature Review

2.1 Introduction

Academic persistence plays a critical role in students' success and self-confidence (Tinto, 2017). Nonetheless, the language used to describe the ways in which learners remain committed or persistent in the face of challenges is often unclear. While academic persistence is usually not easy to operationalise, two terms are commonly used in the literature to encompass learner persistence in dealing with academic setbacks, namely academic grit and buoyancy. Angela Duckworth, a pioneer in grit research, introduced the term grit to examine perseverance in academic and non-academic contexts which is characterised by prolonged persistence, while Martin and Marsh (2008) developed the notion of academic buoyancy to describe learner's effort to effectively respond to everyday academic stressors. Although grounded in academic persistence, the concepts of grit and buoyancy often present a challenge due to their conceptual intricacies, and the lack of research that concurrently examines these constructs of persistence.

While much of the literature implies possible links between components of academic persistence and academic outcomes, it has yet to fully elucidate the conceptual ambiguity concerning the meanings of concepts of academic persistence, especially grit and buoyancy. This is clearly evident in the lack of consensus in the literature regarding the meaning and structure of grit and buoyancy and whether they are synonymous or entirely distinct. Within grit and buoyancy literature, internal factors specifically self-efficacy or individuals' beliefs about their abilities tend to emerge as a theoretical means to connect grit and buoyancy to learning outcomes. In the context of language learning, self-efficacy is posited to be critical for understanding the relationship between persistence and academic outcomes (Graham, 2022). Thus, this study employs a multidimensional theoretical framework to investigate grit and buoyancy simultaneously in a specific language domain, focusing specifically on the most

dominant frameworks used to study the connection between academic persistence, its conceptually related constructs and L2 achievement outcomes. Key word searches pertaining to academic persistence were thus used to conduct the review of literature such as academic persistence, resilience, motivational resilience, achievement motivation, grit, buoyancy, persistence drivers, and motivation and academic performance. This chapter reviews major theories behind the concept of academic persistence and its key drivers, highlighting the complexities in the definition and measurement of persistence-related constructs. It begins with a review of academic persistence in general (Section 2.2), before exploring the interplay between grit, buoyancy, self-efficacy and academic persistence in the context of language learning (Section 2.3 to 2.5) The chapter then identifies gaps in the literature with regard to the definitions and dimensions of persistence-related constructs, focusing specifically on the cognitive-affective dimension to provide a rationale for utilising the psychological capital and working memory executive functions as the conceptual frameworks for the study (Section 2.6). The chapter concludes with a synthesis of key insights from the reviewed literature, offering a foundation for the research design and interpretations of the findings in subsequent chapters.

2.2 Theoretical Foundation: introducing academic persistence and its related concepts

Academic persistence has been proposed as a multifaceted construct, encompassing learners' positive adaptation and abilities to overcome language learning difficulties (Chu et al., 2024; Shin & Kim, 2017). Within the realm of educational research, academic persistence is frequently studied in relation to learner motivation and resilience, also referred to as motivational resilience, and often linked to positive learning and achievement outcomes. Martin (2002) noted that while the literature is saturated with studies concerning learner's motivation, it remains unclear how learners remain motivated when they encounter challenges and setbacks. To fill this gap, Martin developed a new model by integrating a number of theories that could be used to understand motivational resilience, especially in educational contexts, based on factors

such as self-efficacy, expectancy-value, need achievement, self-worth, attribution, and motivation orientation. To reduce the complexity of the model, Martin divided the model into factors that can promote motivation and academic resilience called 'boosters' and those that discourage resilience and motivation or 'guzzlers' (Figure 2-1).

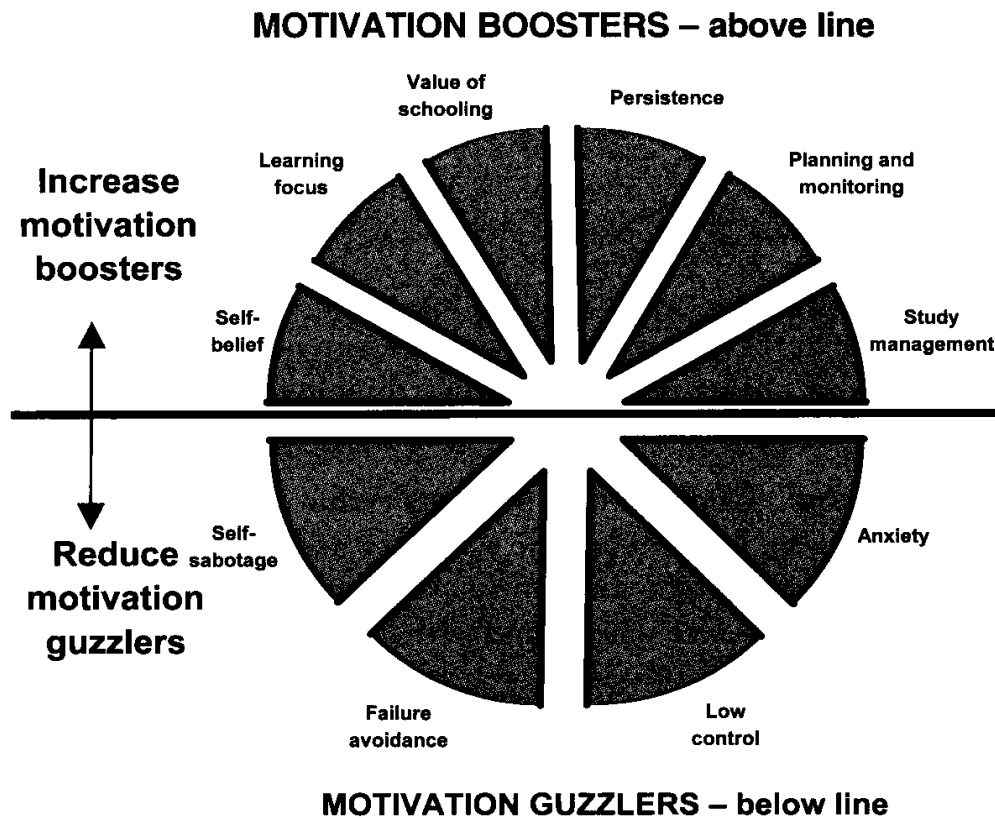


Figure 2-1 Martin's Motivational Wheel of Academic Resilience (Martin, 2002, p.41)

The model implies that academic resilience in the face of difficulties is broadly situated within the spectrum of boosters, or positive factors, or negative and guzzlers. These factors were further separated into booster thoughts and booster behaviours and guzzler thoughts and guzzler behaviours. The model suggests that motivation-persistence connections operate in the associations between both boosters of behaviours and thoughts. Thus, understanding drivers of behaviours and thoughts are essential to the study of academic persistence. As the present study is mainly concerned with concepts surrounding positive functioning, motivation boosters

are considered. Specifically, boosters rather than guzzlers are chosen for this study because of the need to examine constructs that are typically illustrated as predictors of positive outcomes. Unlike guzzlers that often narrow individuals' thought-action tendencies, Martin highlights that boosters enable individuals to build different personal resources including psychological and intellectual ones that can be utilised in challenging situations.

While Martin's Motivational Wheel (2002) was originally developed to conceptualise key facets of learner motivation and their potential impact on academic outcomes, it has been criticised for its limited emphasis on learner personal characteristics (Nolen, 2020; Urhahne & Wijnia, 2023). These critics argue that the framework largely overlooks the importance of sociocultural and situational factors, which are essential for the understanding of the multi-faceted nature of learner motivation. Similarly, Pekrun (2024) argues that although the Motivational Wheel may offer a simplified understanding of core theories of motivation, it often lacks operational clarity. Considering the role of the Motivational Wheel within the context of academic resilience specifically, Polat (2024) maintains that Martin's framework can be useful as a starting point to coherently understand the potential links among academic resilience, engagement and achievement in online education. Martin (2023) revisits the Motivational Wheel framework and convincingly points out that the framework may exclude some motivational factors.

Nonetheless, he argues that the Motivational Wheel primarily captures intra-motivational attributes that can be further expanded into a meta-framework of motivation to account for the various conceptual complexities and limitations in the study of motivation and learning. This suggests that the Motivational Wheel framework has the potential to elucidate learner intra-motivational factors that largely lack theoretical clarity, especially in the field of academic resilience.

Another significance of the Motivational Wheel lies in its illustrative rather than restrictive operation of learner motivation and engagement (Martin, 2023). This implies that the Motivational Wheel can possibly fill crucial gaps in understanding the connections between academic resilience and achievement outcomes. This is partly because the Motivational Wheel

framework emphasises academic persistence within the broaden and build perception that highlights thought-action tendencies (Martin, 2002). The conceptualisation implies that a change in students' self-beliefs, for example, may affect how they persist in the face of challenges, which aligns with previous studies that highlight the important role of studying the interaction between cognitive beliefs and persistence constructs (Graham, 2022).

While non-cognitive factors, especially personality factors such as persistence and its related constructs have informed the conceptual model for this research, it should be made clear that such factors are not devoid of cognition (Borghans, Duckworth, Heckman, & Weel, 2008). In fact, Borghans et al. (2008) emphasised that many personality factors do not operate independently of cognitive processes; rather, they are influenced by them. Meanwhile, most research investigating academic persistence often draws borders between cognition and resilience, usually referring to persistence and its related constructs as affective or non-cognitive traits (Credé et al., 2017; Yang, 2014; Zhao & Wang, 2023). This seems problematic as it largely challenges the multi-factorial assumption underlying persistence. Thus, using the term non-cognitive factors may overlook the interplay between thoughts and actions in the study of optimal functioning in academic settings. Additionally, a comprehensive framework that has the potential to emphasise the connections between cognition and persistence may better demonstrate the different and often blurring dimensions of academic persistence.

While academic persistence has been situated within several areas including ongoing engagement, regulation, rebounding or bouncing back, and reactivity to academic stressors, Skinner et al. (2020) call for an integrative approach for studying academic persistence that considers these individual characteristics together as processes that can be enriched. In so doing, the researchers emphasise, a more accurate understanding of the underlying aspects of academic persistence can be gained, including cognitive, metacognitive, motivational and attentional processes. Yet, literature around the interrelationship between resources such as academic persistence and self-efficacy and how they influence L2 performance has been conspicuously absent despite being highlighted by social cognitive theorists such as Pajares

(2003). Therefore, drawing upon a more generalised framework of academic persistence separately may fail to provide insights into the relationship between thoughts and behaviours and how these combined may contribute to academic achievement. Rather, what is needed is a combination of theories which have frequently provided evidence for the connection between academic persistence and achievement and widely applied in the context of L2. To facilitate the understanding of the possible cognitive-affective dimension underlying academic persistence, this chapter draws on grit, buoyancy and self-efficacy theories in addition to investigating persistence in relation to psychological capital and WM executive functions.

One way to understand how academic persistence may contribute to achievement outcomes is through focusing on concepts necessary for optimal functioning such as grit and buoyancy (Sudina & Plonsky, 2021). Graham (2022) recognises self-efficacy as the bridge that connects persistence and language learning outcomes. The following review focuses primarily on grit and buoyancy as pillars of academic persistence. Literature on these constructs spans largely from 2004 onwards. As these constructs are commonly treated independently, grit research is introduced first before research on buoyancy as manifested in L2 literature. Echoing Graham (2022) on the role of self-efficacy, a discussion of this construct is provided to decipher persistence-performance relationship. The review explores the cognitive-affective dimension of academic persistence, highlighting grit, buoyancy and self-efficacy in relation to L2 achievement outcomes and the role of complex cognitive processes such as WM executive functions in influencing variations in learner academic persistence. To provide a complete picture of the cognitive-affective dimension underlying academic persistence and its relevant construct, the Psychological Capital (PsyCap) and WM executive functions are included.

2.3 Grit

Research on grit has expanded considerably in the last years, building on the seminal work of Angela Duckworth (Duckworth et al., 2007). Drawing on the Big Five Model of personality traits, Duckworth et al. (2007) define grit as “perseverance and passion for long-term goals”(1087).

Thus, grit encompasses two facets: perseverance of effort and consistency of interest over a long period of time. While Duckworth and her associates situate grit within personality traits, they distinguish it from other traits as being compound, emphasising stamina in effort and consistency of interest (Duckworth & Quinn, 2009). Duckworth et al. (2007) further explain that just as intelligence and intellectual skills are essential to achievements so are personality traits. They suggest, however, that the big five factors of the personality model, conscientiousness, extraversion, openness to experience, neuroticism, and agreeableness, may fail to represent other important traits, especially those with conceptual nuances. For example, while grit and conscientiousness may both be seen as attributes referring to persistence, they are largely distinct in their emphasis. Conscientiousness refers to perseverance to achieve short term goals, such as task completion, whereas gritty individuals pursue their efforts and comply with their goals over long periods of time (Duckworth et al., 2007; Sudina & Plonsky, 2021).

Duckworth et al. (2007) further developed and validated a self-report questionnaire which they called the Grit Scale. The Grit Scale consisted of 12-items focusing on measuring two factors, consistency of interest and persistence of effort, among adults aged 25 years or more from different life domains. The researchers found that the grit measure indicated a positive association between grit and age and between grit and educational levels. Two years later, Duckworth and Quinn (2009) revised the original grit scale (Grit-O), introducing a shortened version known as the Short Grit Scale (Grit-S), with the number of items reduced to eight. The importance of these scales lies perhaps in the emphasis on variables that can predict achievement beyond IQ or other trait measures. As a two-dimensional trait, Duckworth and Quinn (2009) found that gritty individuals progressed in their education, earned higher GPAs, and made fewer career changes. They concluded that, unlike the Big Five Personality Factors, grit is characterised by sustained effort and interest for months or longer, even in situations where positive feedback may not be provided.

Nevertheless, the generalisation of the original grit research findings to other sample populations could be questioned for several reasons. First, most grit research has been

conducted with high-achieving participants (Sudina & Plonsky, 2021). Furthermore, the grit scale has predominantly been used as an indicator of general academic achievement goals as opposed to specific ones such as language achievement (Teimouri et al., 2020). Additionally, while two subscales, namely persistence of effort and consistency of interest exist, most grit research has relied on overall grit scores rather than the separate scores for each subscale independently (Credé, Tynan, & Harms, 2017). Lastly, not all grit subscales can be key predictors of academic outcomes, especially in non-Western contexts (Datu, Valdez, & King, 2015). This suggests the need for a measurement that is particularly tailored to a specific domain (Clark & Malecki, 2019; Sudina & Plonsky, 2021; Teimouri et al., 2020; Yu et al., 2021), context-specific (Datu et al., 2016; Teimouri et al., 2020; Wei et al., 2020) or cross cultural (Disabato et al., 2018), and has the potential to study each grit subscale separately and not only aggregating the two into a single construct (Credé et al., 2017; Datu et al., 2015).

There are different studies validating the general grit scale among diverse samples such as in China (Datu & Zhang, 2020; Luo, Wang, Ge, Chen, & Xu, 2020), the Philippines (Datu et al., 2015), Mexico (Marentes-Castillo, Zamarripa, & Castillo, 2019), Poland (Wyszyńska, Ponikiewska, Karaś, Najderska, & Rogoza, 2017), and Malaysia (Tan et al., 2019). Few studies, however, have adapted the general grit scale to study ESL/EFL grit in a particular context such as in the study of the achievement of EFL undergraduates in Iran (Teimouri et al., 2020); English vocabulary learning outcomes among Saudi undergraduates (Alamer, 2021), and foreign languages other than English (French and Spanish) achievement outcomes among university students in the United States (Sudina & Plonsky, 2021). In a meta-analysis of the grit literature, Credé et al. (2017) argue that there have been mixed results concerning the correlation between the two dimensions of grit and performance: they found that persistence of effort dimension accounted for most variance in performance, more than consistency of interest or even overall grit score. Thus, they questioned the combination of persistence scores with consistency scores as a unitary single construct to predict performance. They suggested breaking down the grit scale by treating each construct distinctively to maximise the understanding of their

predictive value. They concluded that evidence of associations between grit and performance based on the overall grit score is inconclusive. As such, the researchers called for shifting the focus of grit research by investigating conceptually related concepts and focusing attention on persistence of effort rather than consistency of interest. A key finding revealed by the meta-analysis indicated that the grit scale, in its construction of two subscales, may poorly predict performance when utilised independently. Clark and Malecki (2019) lend support to this finding, highlighting that the relationship between academic grit and achievement may be diffused if based on a combined overall score of the two grit dimensions. While conceiving grit as a single factor construct, (Clark & Malecki, 2019; Tang et al., 2022) emphasised that academic grit entails effort, determination, focus and adaptive functioning. Clark and Malecki (2019) and Credé et al. (2017) emphasised that the perseverance of effort facet has greater criterion validity than consistency of interest. They further demonstrated that many constructs may overlap with grit. This suggests the need to deconstruct the grit sub-scales, and to examine potential variables that overlap with grit and can affect academic achievement, an endeavour that this study seeks to undertake.

In response to this need, Clark and Malecki (2019) reconceptualised grit and its measurement scales by introducing the Academic Grit Scale (AGS). Utilising rigorous factor structure analyses, including exploratory factor analysis (EFA) and confirmatory factory analysis (CFA) in the development of the AGS scale, the researchers explained that academic grit is a single factor structure, encompassing determination, resilience and focus. The AGS consists of 10 items based on a 5-point Likert scale with a very good internal consistency Cronbach's $\alpha=0.92$. Correlation analysis between the AGS measure and the original grit scale indicated that the measures are positively associated, providing evidence of construct validity of the AGS measure. Unlike the reported differences across gender as documented by the Grit-S, the AGS demonstrated no statistical significance in academic grit based on gender or grade level. The researchers concluded that the general Grit-S can be ideally used to investigate global or general outcomes whereas the AGS is more appropriate for examining academic-specific

outcomes. Although the AGS may account for the dynamic nature of grit, especially in educational settings, it fails to depict how grit may relate to language learning or operate at specific situations such as dealing with task difficulties.

2.3.1 Grit and L2 research

Within the realm of L2 learning, the notion of grit has received significant attention (Credé & Tynan, 2021; Datu et al., 2016; Sudina & Plonsky, 2021). This section thus presents an overview of L2 studies that examine the definition and underlying structure of grit. In particular, Datu et al. (2018b) probed whether the structure of grit in the Philippines would mirror the two-factor structure that originated in the west and proposed by Duckworth and her colleagues. Through a qualitative inquiry, Datu et al. (2018b) interviewed 10 undergraduate students and concluded that grit encompasses networks of relationships, especially among perseverance of effort, adaptability and self-efficacy. Different from the general grit two-factor model (Duckworth et al., 2007) and the single factor structure (Clark & Malecki, 2019; Tang et al., 2022), grit was theorised as a three-dimensional construct, including perseverance of effort, consistency of interests, and adaptability to situations in collectivist settings (Datu et al., 2016; Datu & Zhang, 2020; Datu, Yuen, & Chen, 2017a). Datu, Yuen, and Chen (2017b) further identified that perseverance of effort and adaptability in particular were the prevalent facets of grit and significantly contributed to academic self-efficacy in collectivist environments. In assessing the factorial structure of grit in China, however, Tang et al. (2022) stipulate that the single-factor structure of academic grit that highlights determination, focus and resilience is more effective than the general grit and the triarchic models, especially for understanding educational outcomes among Chinese adolescents. Disabato et al. (2018) highlighted in their cross-cultural analysis of grit that the meaning of grit is culture-specific, with the perseverance of effort facet being more meaningful in collectivist contexts than consistency of interest. The inconsistencies surrounding the meaning, and the underlying structure of grit raise the question concerning how

grit may operate at a specific language domain within other non-Western contexts, particularly Saudi Arabia.

Despite the significant developments in general and academic grit research, recent concerns have been voiced in the literature concerning theoretical overlaps between the perseverance dimension of grit and other related constructs (Credé et al., 2017; Fong & Kim, 2019; Sudina & Plonsky, 2021). Fong and Kim (2019) studied the clash among conceptually related constructs of academic perseverance, specifically examining the conceptual links among three motivational constructs: grit, academic buoyancy, and future time perspectives. They further explored the predictive power of these variables and overall achievement scores among 328 ethnically diverse undergraduates studying at an American university. The findings showed modest correlations among the three variables with grit being more predictive of students' achievement as compared to buoyancy and future time perspective. This suggests that while these constructs tend to converge, they represent distinct motivational processes. The researchers concluded with a call for further context-specific research in the study of the impacts of academic buoyancy and grit on academic achievement. Thus, it may be possible to argue that the perseverance dimensions of grit and academic buoyancy may operate differently in the study of first year EFL college students. Questions regarding the role of the perseverance facet of grit and academic buoyancy in relation to first year college students' writing achievement and relevant internal motivational constructs are yet to be investigated; one of the concerns that the present study attempts to address.

The conceptual overlap between L2 grit and other conceptually relevant constructs particularly buoyancy has also been a fundamental concern of studies examining foreign language learning other than English e.g. (Sudina & Plonsky, 2021). Sudina and Plonsky (2021) analysed relationships among grit, buoyancy, conscientiousness, and intended effort among 360 students studying either French or Spanish in the US. By means of self-report surveys, participants responded to the foreign language grit scale, comprised of four scales of conceptually relevant constructs. This scale was developed to test whether grit conceptually

overlapped or differed from other relevant variables. It was also used to test the predictive value of foreign language grit in relation to language achievement outcomes. The results demonstrated an overlap between grit and intended effort constructs. However, grit was found distinct from academic buoyancy. Unlike many of the grit researchers, Sudina and Plonsky (2021) reported that the consistency of interest dimension of grit was a key predictor of foreign language achievement in comparison with the perseverance of effort facet. Concepts emphasising academic persistence are perhaps best understood through the investigation of subjects deemed challenging or difficult (Martin & Marsh, 2008; Ponnock et al., 2020). While the reviewed studies focus on persistence akin to mathematics, science and general language learning, they apparently fail to fully recognise academic persistence in relation to L2 writing achievement outcomes.

In relation to this and within SLA research specifically, Credé and Tynan (2021) elucidated pitfalls that can impair the study of L2 grit. The caveats include the content of the grit scale that combines the two facets of grit, i.e. perseverance and passion, into a single variable and the wordings of scale items; perseverance items are positively worded whereas items relating to passion contain negative contents. To avoid such problems, the researchers provide several recommendations for L2 grit research, including utilising qualitative enquiry approaches to document learners' experiences of language grit; emphasising high and low language achievers; recruiting consistent samples; and contextualising measurements. Currently, few studies have begun to make links between concepts of academic persistence, especially grit and buoyancy, and general language achievement outcomes (Teimouri et al., 2020; Yun et al., 2018). Other studies have emphasised the positive correlations between English language skills, focusing primarily on reading achievement outcomes and these concepts of academic persistence in relation to grit (Hofmeyr, 2021), as well as buoyancy (Colmar et al., 2019), particularly among young learners.

In mapping out links between L2 grit and general language achievement outcomes, Teimouri et al. (2020) developed an L2 grit scale drawing on the original two-dimensional grit scale that

highlighted perseverance of effort and consistency of interest. The researchers reported positive relationships between L2 grit and English language achievements of a group of L1 Persian undergraduate students, studying English translation. Furthermore, Zhao and Wang (2023) analysed the predictive effect of grit on emotions and English achievement outcomes among a sample of 504 secondary school pupils in China. The results of the structural equation analysis revealed the significant role of the two components of grit in predicting students' emotions and English achievements. They further suggest that greater levels of enjoyment are linked to increased effort and interest, contributing to better language learning outcomes. In contrast, Khajavy and Aghaee (2022) found only perseverance of effort can be a significant predictor of L2 achievement and enjoyment among English language learners in Iran. However, grit failed to predict L2 achievement after adding various predictors to the model including L2 enjoyment, L2 anxiety and personal best goals. It was found that only personal best goal emerged as a significant predictor of L2 achievement. Based on these findings, the researchers call for reconsidering the limited predictive power of the consistency of interest component of grit in predicting L2 achievement and caution against conflating the two facets of grit.

2.3.2 Grit and specific L2 domains

The effect of grit on specific language domains, especially reading has also been emphasised, For example, Hofmeyr (2021) studied the impact of school sociocultural characteristics on the perseverance dimension of grit and reading achievements among young learners in South Africa. A large sample of 2383 learners was recruited from 60 rural schools in three disadvantaged provinces. School functionality was classified into three classes, ranging from high to low, depending on participants' socioeconomic information. While the study was most relevant to resilience in acute environments, it highlighted significant correlations among persistence, reading achievement, and school conditions, as well as indicating that learners' grit was a significant predictor of reading achievement outcomes even under poor or low-level school conditions. These findings imply that school conditions are less likely to limit learners'

levels of persistence. Although grit was a significant predictor across different levels of disadvantaged schools, variance in reading outcomes was reported. The study showed that students in high and medium functioning schools had a greater increase in reading scores compared to their counterparts in low functioning schools. However, the increase in reading scores was small when participants in high functioning schools were compared to their counterparts in schools of medium functionality. These observed differences may thus highlight some effect from environmental and socio-economic factors with respect to academic persistence, especially among young learners.

Similar findings about the predictive power of grit in relation to reading achievement in Africa were reported by Mulcahy-Dunn et al (2018). Unlike other grit researchers, Mulcahy-Dunn, King, Nordstrum, Newton, and Batchelder (2018) developed a new grit measurement that featured scenario-based items. While the original and short grit scales used the first person “I” format for items, requiring respondents to rate their behaviours on a 5-point Likert scale ranging from “not at all like me” to “very much like me”(Duckworth & Quinn, 2009; Duckworth et al., 2007), the new measure used hypothetical characters and asked respondents to determine on a three-point scale the extent to which they resembled these named characters. This simplified test was applied to a sample of 961 Tanzanian grade 2 primary students. In the study, the researchers speculated that grit, self-confidence and self-control or what they referred to as ‘soft skills’ might predict reading and mathematics achievement outcomes among young learners. Data was compared by gender, socioeconomic status, and academic performance in reading and mathematics, with a small gender difference emerging in grit whereby girls scored slightly higher than boys. On the other hand, comparisons by socioeconomic status yielded no significance differences among participants for either grit or self-control variables. In terms of performance, students with high academic grit scores performed better in reading and math than those with low scores, leading to the conclusion that grit and self-control can significantly predict young learners’ reading and math performance.

While the aforementioned studies have often regarded grit as domain-specific, the potential role of grit on writing outcomes appears to be underexplored. Zhang (2023) realised the significance of grit in L2 writing, wherein positive links were established between grit and L2 writing achievements. Specifically, the researcher utilised structural equation modelling to investigate the relationships among writing achievement goals, grit, and L2 writing achievements in both narration and argumentation genres among a cohort of 436 university students in China. The findings revealed that in the two genres, the perseverance of effort component of grit had a significant positive effect on L2 writing achievements. They further showed that only perseverance of effort mediated the relationship between writing achievement goals and L2 writing achievements in the two genres. These findings imply that persistence of effort, rather than consistency of interest, may contribute to better L2 achievement outcomes. In a similar vein, Zhang and Zhang (2023) studied the role of learners' cognitive abilities (aptitude and WM in the study) and grit in predicting the writing performance of 353 Chinese undergraduate students in argumentative and narrative tasks. The researchers found that perseverance of effort and working memory were key predictors of L2 writing in argumentative tasks whereas in narrative tasks both grit facets were key predictors. These findings indicate that persistence of effort, consistency of interest and WM are crucial for understanding L2 writing achievement.

Moving beyond correlation, Shafiee Rad and Jafarpour (2023) incorporated an intervention focusing on positive emotions to explore the impact of well-being, grit, emotion regulation, and resilience on the writing skill of female students studying English in Iran. The researchers recruited 70 participants and reported an increase in the mean scores of the intervention group post-test following the implementation of the positive emotion intervention. The intervention was conducted twice a week within the writing classroom over a 10-week period, and highlighted the examined positive constructs. While the findings of the study may underscore the important role of targeted interventions in the study of grit, Credé et al. (2017) argue that an interventional design may not be a robust method within academic persistence research.

Wilson (2016), for example, followed a mixed-methods approach to study the potential links between grit, growth mindset, and reading scores among young learners in an American primary school. In addition to student cohort, the researcher recruited teacher participants.

Participating teachers were introduced to the concepts of grit and mindset and were asked to utilise their learned strategies in their instruction. Students' pre and post grit instruction scores were collected, along with their reading scores, and interviews with teachers were also undertaken. The correlation analysis demonstrated no relationship between grit, mindset and reading scores. The interview data revealed that teachers were inconsistent in incorporating grit in their instruction. The discrepancies in the findings may suggest that grit may not be easily manipulated, hence interventions may not be practical. Instead by focusing on key predictors of academic persistence and its relevant constructs, it is likely to extend the frontiers of current understanding of the investigated constructs, identify limitations of previous research, and illuminate confusion in terms and measurements to facilitate the implementation of interventions.

In summary, the findings from the studies reviewed thus far highlighted gaps relevant to the structure and measurement of grit. While many existing studies have heavily relied on the overall grit scale, which defines grit as a composite construct encompassing perseverance of effort and consistency of interest, some studies have contested this approach, particularly in relation to L2 (Credé & Tynan, 2021; Credé et al., 2017). Findings from studies examining the underlying components of L2 grit suggest three dimensions of grit, encompassing perseverance of effort, consistency of interest and adaptability (Datu et al., 2017a). The literature has also revealed a conceptual overlap between L2 grit and other conceptually relevant constructs, particularly those that underscore academic persistence (Sudina & Plonsky, 2021). The complexity surrounding grit dimensions and measurements have resulted in a lack of consensus on whether grit is a unidimensional, dual or triadic construct. While the literature suggests that grit is context-dependent, only a limited number of studies have focused on grit in particular language domains, such as reading and writing. To address some of the limitations

found in the literature, this study focuses on the perseverance of effort component of grit among Saudi female undergraduates to fully understand the potential links between learners' characteristics of components of academic persistence and their writing achievements and WM functions.

2.4 Buoyancy

Another conceptual overlap in the field of academic persistence can be found in the conceptualisation of buoyancy. While buoyancy was initially captured by Martin and Marsh (2008) in relation to “everyday resilience”, recent evidence reported a lack of discriminant validity between buoyancy and persistence, especially within the field of L2 (Yun et al., 2018).

Buoyancy is typically defined as:

students' ability to successfully deal with academic setbacks and challenges that are typical of the ordinary course of school life (e.g., poor grades, competing deadlines, exam pressure, difficult schoolwork) (Martin & Marsh, 2008, p. 54).

While Martin and Marsh (2008) claimed subtle differences between buoyancy and other constructs such as traditional resilience and coping, they drew on the latter in their operationalisation of buoyancy. However, Martin (2013) viewed buoyancy and academic resilience as distinct: academic resilience may apply to a specific student sample whereas academic buoyancy can be used with all student cohorts. Noting the parallels among these constructs, Martin and Marsh (2008) pointed out that academic resilience offers valuable insights into the understanding of buoyancy. Building on resilience research, the researchers developed the buoyancy scale. The scale consisted of four items, representing factors that could predict buoyant individuals such as self-efficacy, academic engagement, control, teacher-student relationships, and anxiety. Martin and Marsh (2008) thus examined how high school students in Australia demonstrated everyday resilience or persistence in the face of domain-specific challenges, especially in mathematics: using self-assessment reports, the

researchers collected data from 598 high school students at mid-term and at the end of the academic year. The results of the multilevel modelling analysis showed that anxiety, academic engagement and self-efficacy were significant predictors of academic buoyancy, with self-efficacy, academic engagement and teacher-student relationships accounting for much of the variance in students' responses to mathematical challenges. Based on these results, the researchers concluded that anxiety was the salient predictor of academic buoyancy among the examined sample. This finding seems unsurprising, however, given the limited purview of the analysis to mathematics only. It is possible, however, to expect different results when the scale is used to investigate different academic subjects or different population groups other than secondary school students.

2.4.1 Buoyancy and L2 research

While research on academic buoyancy emerged within the field of mathematics, Yun et al. (2018) tested the relevance of academic buoyancy to L2 college students learning English. Adapting the buoyancy scale, these researchers tested relationships among buoyancy, L2 achievement, GPA, and six hypothesised predictors: self-efficacy, self-regulation, ideal L2 self, teacher-student relationship, and anxiety. Unlike Martin and Marsh (2008), Yun et al. found that all the hypothesised predictors, except stress, were significant predictors of L2 academic buoyancy, though self-belief emerged as the most significant predictors of L2 academic buoyancy. These findings further revealed that academic buoyancy was a key predictor of L2 achievement and learners' GPAs. However, despite this preliminary evidence around L2 buoyancy among Korean college students, less is known about the impacts that academic buoyancy and self-beliefs have on L2 learners' writing achievement. This study responds to this gap by investigating academic buoyancy akin to academic writing, particularly within the Saudi context.

Similar to grit, the role of academic buoyancy has been emphasised within subject-specific domains, including reading (Colmar et al., 2019). Colmar et al. (2019) conducted a correlational

analysis to examine the relationship between academic buoyancy, self-concept, and academic performance in reading and mathematics. By means of tests, the researchers found significant domain-specific relationships between academic buoyancy of 191 primary student participants (aged 9-11) from eight schools in Australia and their reading and mathematics performance. The direct impacts of buoyancy on academic performance were only established through the mediating variable of self-concept. Thus, the research proposed that it is only through examining students' self-concept that the buoyancy-performance relations can be noticed, particularly among young learners. The findings from structural equation modelling also revealed that academic buoyancy was domain specific. That is, academic buoyancy within each domain predicted self-concept which led to achievement; no relationships were found when both domains were combined. To gain further insights about buoyancy domain specificity, the researchers suggest that future studies should examine buoyancy, self-beliefs and performance across other domains.

Research has recently perceived the role of academic buoyancy in L2 writing (Wang & Xu, 2023). Utilising a latent profile analysis, Wang and Xu (2023) analysed whether EFL undergraduate students in China exhibited different profiles of writing emotions and the impact of the identified profiles on learners' writing motivation, buoyancy, and proficiency. The findings demonstrated three groups of learners based on their writing emotions: positive, moderate and negative. The findings further solidified the links between learners' profiles of writing emotions and their levels of buoyancy, motivation and proficiency in writing, with the positive group having the highest scores of thereof. Although the study was concerned with writing emotions, the nuances in the levels of writing buoyancy and proficiency among the identified profiles may signify that learners who display greater levels of buoyancy may also demonstrate improved writing skill. The findings of the profile-based analysis may imply the significance of this approach in advancing the understanding of the impact of learners' characteristics on their L2 achievement. Similarly, Xu and Wang (2023) underscored the crucial role of academic buoyancy in relation to L2 learners' feedback seeking behaviours in writing among university students in China. In

examining the effect of academic buoyancy, growth mindsets, and ideal and ought-to L2 writing selves on learners' feedback seeking behaviours in writing, the researchers found these variables key predictors of Chinese feedback seeking behaviours in writing. This is important because it implies that learners with greater academic buoyancy are more inclined to seek feedback to improve their writing. While the study provided insightful links between buoyancy and feedback seeking, the study was limited to identifying potential relationships. A study that particularly categorises learners based on their similarities of these constructs has the potential to enrich the understanding of these established links. Research of this type may illustrate whether meaningful groups of persistence related constructs, especially grit and buoyancy, may exist within L2 learners and examine group differences.

Generally, studies investigating buoyancy utilised the unidimensional ABS developed by Martin and Marsh (2008) that examined how learners cope with problems arising from learning mathematics. Previous research on L2 buoyancy revealed that academic buoyancy was a key predictor of L2 achievement and learners' GPAs (Yun et al., 2018). However, despite this preliminary evidence around L2 buoyancy, less is known about the impacts of academic buoyancy in specific L2 domains. The findings of the few available studies have suggested possible links between the writing emotion profiles of Chinese learners of English and differences in their levels of buoyancy, motivation and proficiency in writing (Wang & Xu, 2023). While differences in writing buoyancy, motivation, and proficiency were revealed among the identified groups based on writing emotions, the study did not specify how nuances in buoyancy patterns in writing may impact writing achievement outcomes. This emphasises the need for understanding specifically the role of L2 learners' characteristics of buoyancy and grit in relation to writing achievement outcomes and performance in WM tasks. Investigating these constructs together under the umbrella of academic persistence may address existing conceptual ambiguities while providing new insights into persistence related constructs in the context of Saudi EFL undergraduates.

All in all, this review has highlighted academic persistence and its pillars in terms of grit and buoyancy. It also pinpointed persistence and its related constructs in relation to L2 literature. Clearly, the existing body of research has identified a conceptual overlap between buoyancy and the perseverance of effort dimension of grit (Fong & Kim, 2019; Schimschal, Visentin, Kornhaber, & Cleary, 2021). However, in assessing the predictive and incremental validity of these constructs, researchers corroborated that these constructs are distinct despite being conceptually relevant (Fong & Kim, 2019; Sudina & Plonsky, 2021). Nonetheless, little empirical evidence has studied these constructs together in the field of L2 (Yang et al., 2022). When closely considering the reviewed literature akin to specific language domains, it can be noticed that research is typically centred around reading achievement. The relative lack of research pertaining to other language domains may limit understanding the role of persistence constructs in domains that are inherently challenging. Therefore, the present study emphasises academic persistence by focusing on grit and buoyancy in relation to writing skills, particularly among EFL Saudi first year university students. One reason for this is because literature on grit and buoyancy in relation to language learning outcomes tends largely to focus on general language achievement specific to overall GPA scores, overlooking these variables in relation to performance at skill level. Establishing associations between grit, buoyancy and language achievements on the basis on overall GPA scores alone may imply that persistence is a unitary construct across subjects, language skills or even within a single task. In particular, research on grit and buoyancy as predictors of writing achievements is largely scarce. How such variables may influence EFL writing achievements appears poorly documented. According to Gaffas (2019) and Alharbi (2019), EFL Saudi students enter university with generally low language proficiency; their writing skills in particular are considered below standard for ESL university students globally. Gaffas (2019) thus argues that while Saudi undergraduates may have solid content knowledge, transferring this knowledge into writing is challenging even at a sentence level. One reason for this, according to the latter, may be due to the emphasis on grammar instruction in English writing classes. Since little is actually known about factors that may influence Saudi undergraduates' writing beyond the linguistic dimension, this study aims to

examine grit and buoyancy in relation to the writing achievements of first- year EFL Saudi undergraduates.

2.5 Self-efficacy as the ground in the persistence-performance relationship

According to Graham (2022), self-efficacy serves as the common ground for understanding persistence-performance relationships. This implies that understanding learners' self-beliefs could potentially provide significant insights into how they respond to challenges and remain afloat. Schunk and DiBenedetto (2020) extend that self-efficacy can demystify the blurred boundaries between motivation theories and other relevant theories, especially social cognitive theory. In her analysis of self-efficacy in the context of language learning, Graham (2022) pointed out that self-efficacy can be understood when it is regarded as domain specific, evolving from learners persistence through challenges. That said, self-efficacy has been shown to affect individuals' persistence and performance (Bandura, 1977; Bandura, 1982); has often been theorised as a significant predictor of persistence (Cassidy, 2015; Rudd, Meissel, & Meyer, 2021) and academic performance and achievement (Martin, 2013; Thompson, Aizawa, Curle, & Rose, 2019; Yip, 2019). By definition, self-efficacy is perceived in terms of the judgments that individuals make about how well they can perform and execute actions to deal with new or challenging and unpredictable situations (Bandura, 1981). This means that the judgments that individuals make about their capabilities may determine how they expend effort and persist in the face of aversive experiences. Persistence of effort is crucial for self-efficacy because individuals with strong perceived self-efficacy do not give up in the face of setbacks, instead they persist and exert more efforts (Bandura, 1977; Bandura, 1982; Schunk, 1983). It is widely accepted that there exists a relationship between increased levels of academic self-efficacy and persistence, ultimately enhancing achievement outcomes among college students (Alhadabi & Karpinski, 2020; McMichael et al., 2021; Wright, Jenkins-Guarnieri, & Murdock, 2013).

As for the sources of self-efficacy, Bandura (1997) elaborated that self-efficacy beliefs come from different sources and levels of judgments. They can arise from an individual's past accomplishments or mastery experiences, observational or vicarious experiences, social persuasion or external feedback and environmental or situational sources. Efficacy beliefs can operate at individual or group levels which Bandura (1997) referred to as personal and collective efficacy beliefs, respectively. These sources differ in their strength and influence based on different contextual factors such as academic domain (Usher & Pajares, 2008). This suggests that the subjective beliefs that learners may bring about their writing skills, for example, are distinct from their beliefs about other language skills. It is nevertheless possible that the complexity of academic writing may undermine students' self-efficacy beliefs at various levels. For example, first-year university students may enter university with great self-efficacy based on their previous accomplishments; however, academic challenges may lower their efficacy beliefs (Tinto, 2017). Further, self-efficacy beliefs may vary in level and strength within each writing tasks. In conceptualising self-efficacy, Bandura (1997) highlighted that while efficacy beliefs are domain specific, they tend to vary at different levels within the same domain.

Inherent in the concepts of grit and buoyancy is that individuals become more motivated, put in more effort, and persist more when contextual challenges arise (Yang et al., 2022). Self-efficacy may thus provide a more comprehensive understanding to depict the relationships, if any, between academic persistence and academic achievement outcomes, teasing apart the complex processes embedded in this potential link. In the field of L2, research has increasingly sought to affirm the domain specificity that characterises academic self-efficacy compared to the broader self-beliefs underlying self-concept in terms of general language achievement outcomes (Chao, McInerney, & Bai, 2018; Graham, 2022; Thompson, Aizawa, Curle, & Rose, 2019) and specific to achievement in specific language skill such as reading (Zhu, Yao, Chan, & Zhu, 2024) and writing (Mendoza et al., 2022). Studies exploring L2 writing self-efficacy, for example, have defined writing self-efficacy as a multifaceted construct that refers to students' beliefs akin to their capabilities in dealing with writing problems (Teng et al., 2017; Teng & Wang,

2022). Such studies emphasised significant relationships between L2 writing efficacy beliefs and learners writing outcomes. Understanding this within the context of writing is particularly important since students tend to constantly change their writing self-efficacy beliefs according to the task, genre, and past experiences (Sanders-Reio, Alexander, Reio, & Newman, 2014). This noticeable fluctuation of writing self-efficacy may suggest that the reported relationship between writing self-efficacy and writing performance outcomes could be contested.

Obviously, there is a lack of consensus regarding the links between writing self-efficacy and academic achievement outcomes. Williams and Takaku (2011) conducted a longitudinal study that involved 671 undergraduates both English native and international students, at a university in Southern California. The study examined the relationship between writing self-efficacy scores, help-seeking as measured by writing centre visits, and students' composition grades throughout their university study. The results of regression analyses revealed that help-seeking through writing centre visitation emerged as the only significant predictor of composition grades compared to self-efficacy and student demographic background. The findings suggest that help-seeking may enhance writing outcomes above and beyond the effect of writing self-efficacy beliefs. Inconsistent to these findings, Sun and Wang (2020) found that self-regulatory learning strategies, including seeking assistance, together with self-efficacy significantly predicted the writing test scores of EFL university students in China, with self-efficacy as the most contributing predictor. This lack of agreement in the literature may suggest the need for a combined approach that simultaneously identifies learners' distinct patterns of writing self-efficacy and examines their impacts on writing achievement. In this way, it is possible to understand the effect of writing self-efficacy on writing achievement better, a gap that vastly persists in the literature (Golparvar & Khafi, 2021).

A more unified understanding of the role of writing self-efficacy in L2 writing achievement can be achieved by integrating self-efficacy and self-regulation frameworks (Teng et al., 2017). In examining writing self-efficacy in EFL contexts, Teng et al. (2017) demonstrate that such research mainly focuses on L1 writing. Consequently, the researchers developed and validated

the Second Language Writer Self-Efficacy Scale (L2WSS) among 609 undergraduates from four universities in China. Building on social cognitive theory and self-regulation, the researchers examined the conceptual dimensions of L2 writing self-efficacy. They further conceptualised L2 writing self-efficacy as a multidimensional structure, encompassing three dimensions—linguistic, self-regulatory and performance efficacy. In the study, linguistic self-efficacy measures how learners judge their language-related cognitive abilities such as learners' confidence in their linguistic competence to use the appropriate words or grammatical structures. Similarly, self-regulatory efficacy measures learners' judgments of their metacognitive abilities to control their writing tasks, while performance self-efficacy measures learners' confidence concerning their abilities to fully accomplish writing tasks. This implies that writing self-efficacy encompasses a range of writing self-judgments, reflecting L2 learners' linguistic, behavioural and self-regulatory efficacy beliefs.

To develop the items used in the L2WSS, Teng et al. (2017) adapted a number of established self-efficacy measures and conducted semi-structured interviews with 15 undergraduate students. The items of the scales were worded using the capability and behaviour expression of 'I can do'. Moreover, the researchers examined the correlations between all three dimensions of writing self-efficacy (i.e., linguistic, self-regulatory and performance efficacy beliefs) and students' motivation in relation to their value beliefs and goal orientations. The results of confirmatory factor analyses revealed that the three constructs of self-efficacy are conceptually related: strong positive correlations were reported between students' intrinsic motivation and writing self-efficacy. Overall, the results showed that L2 writing self-efficacy can impact L2 students' linguistic choices, writing behaviours, writing task completion, and motivational beliefs. Corroborating these findings, Teng and Wang (2022) highlighted that EFL writing self-efficacy encompasses beliefs relevant linguistic knowledge capabilities, self-regulation and writing performance together with efficacy akin to information organisation and memory. While efficacy beliefs relating to working memory were not reflected in previous studies, Teng and Wang (2022) posited that EFL learners in particular often rely on their abilities to memorise and

recall linguistic knowledge. Recently, Teng and Zhang (2024) looked at the moderating effect of working memory and writing proficiency on the interplay between writing self-efficacy and writing performance among 406 Chinese university students in a collective multimedia writing environment. The results of the regression and structural equation analyses revealed significant relationships between writing self-efficacy and the learners' writing performance in multimedia environments. The findings further emphasised how working memory capacities could impact the connections between writing self-efficacy and writing performance. Specifically, students with higher WM capacities processed feedback efficiently and improved their writing, hence impacting their self-efficacy beliefs despite their limited writing proficiency. Although the study emphasised the role of WM capacities in relation to writing self-efficacy, it did not provide insights into the potential impact of students' self-efficacy beliefs and persistence on their WM capacities.

While previous research acknowledges the multifaceted structure of L2 writing self-efficacy, there is a lack of consensus on self-efficacy constructs and measures (Sun et al., 2021). Unlike Teng et al. (2017), Sun et al. (2021) theorised L2 English writing self-efficacy in terms of capability judgments relevant to four aspects: linguistic, semantic, pragmatic and self-regulatory skills. Seemingly, the two L2 writing self-efficacy measures tend to neglect other aspects of self-efficacy judgments such as those relevant to task persistence. While the two studies corroborate L2 writing self-efficacy as a multi-dimensional construct, Teng and colleagues perceived it as three-dimensional in contrast to the four-dimensional structure suggested by Sun et al. This comparison of how L2 English writing self-efficacy is depicted in these two studies provides evidence of the conceptual disparity even within the same L2 context, China in the two studies. Such inconsistencies may limit the generalisation of research findings even across the same population group. The inadequacy could possibly be explained by relying solely on scale measures. Self-efficacy has largely been researched through correlational analyses, with little investigation through qualitative or mixed methods analyses (Mendoza et al., 2022; Shi, 2016; Zhang, 2018).

In a meta-analysis, Shi (2016) reviewed literature on EFL/ESL learners' self-efficacy conducted from 2005 to 2014. The researcher confirmed that this construct is under-researched within EFL/ESL contexts. To identify the scope of learners' self-efficacy within SLA research, Shi (2016) classified L2 self-efficacy research into two categories: the first class incorporates correlational research investigating various associations between self-efficacy and different language learning variables, such as self-regulation, negative emotions, attributions, achievements, and gender, while the other category includes interventional research. Within self-efficacy correlational research, performance and achievement outcomes emerged as the most common theme. This seems in line with Bandura's (1982) argument that mastery experience is the most powerful source of self-efficacy beliefs. After laying out the developments in L2 learners' self-efficacy research, Shi (2016) issued a call for several research directions to support future L2 self-efficacy research. These include research that analyses self-efficacy and learning outcomes at situated and domain specific rather than holistic levels; and research that considers other variables, especially personality factors and positive motivational constructs. This appeal informed the direction of the present study as to combine L2 writing self-efficacy, persistence-related constructs, and writing achievement outcomes.

Although L2 writing self-efficacy is a promising predictor of success and achievement outcomes, it has been rarely investigated in the Arabic context (Sabti, Md Rashid, Nimehchisalem, & Darmi, 2019). Alluhaybi (2015, 2021) further stresses the considerable lack of research investigating Saudi EFL learners' writing self-efficacy beliefs. Most of the few studies on L2 Saudi self-efficacy beliefs have largely examined general self-efficacy in relation to English language learning and generally focused on male undergraduates (Alluhaybi, 2015). While studies on global English self-efficacy among Saudi undergraduates demonstrated positive correlations between perceived self-efficacy beliefs and language achievements (Alrabai, 2018; Amri & Alasmari, 2021; Saleem, Ali, & Ab Rashid, 2018), studies on L2 writing self-efficacy reported no relationships (Alluhaybi, 2015; Almutlaq, 2018). Such contrasting findings raise questions around whether L2 writing self-efficacy can predict writing grades;

whether a combined model of learners' internal factors such as grit, buoyancy, and self-efficacy would uniquely predict students' achievement outcomes in the writing course. This study, therefore, aims to test the predictive power of L2 writing self-confidence, academic grit and buoyancy in relation to writing achievement and WM capacities of Saudi first year female university students. To achieve these objectives, the study utilises a mixed-methods approach to analyse student's distinct profiles of the examined constructs, tests the relationship between students' profiles and their scores in writing and WM tasks and explores students' confidence in their writing capabilities together with their persistence experiences. This is crucial because studies examining the conceptual links among constructs such as grit, academic buoyancy, and future time perspectives suggest that these constructs represent distinct motivational processes that are better understood through context-specific research (Fong & Kim, 2019).

2.6 Filling the Void: attention to the cognitive-affective dimension

There seems a general agreement in the literature that concepts relevant to self-beliefs are significant predictors of L2 grit and buoyancy. This may suggest that the cognitive-affective dimension of constructs of academic persistence should not be overlooked. One way to address the theoretical gap pertinent to the study of academic persistence and its related constructs is through studying conceptually relevant variables together (Fong & Kim, 2019; Sudina & Plonsky, 2021). As suggested by Maaliw et al. (2022) and Aguerre et al. (2022), an approach that incorporates both cognitive and noncognitive learner dimensions and identifies learner archetypes may better explain how persistence may promote academic achievements. Understanding persistence-achievement relationships within the realm of language learning is often studied through concepts necessary for optimal functioning and thriving, including grit and buoyancy (Sudina & Plonsky, 2021). While there is preliminary evidence surrounding the cognitive-affective dimension of persistence and its relevant constructs both in academic (Cassidy, 2015, 2016; Wang, 2023) and non-academic contexts (Armstrong et al., 2018;

Schimschal et al., 2021), no research to date has explored this within the context of L2 research using specifically frameworks that explicitly emphasise cognition and psychological resources.

As far as the interplay between psychological constructs relevant to persistence and cognitive abilities is concerned, studies exploring this, particularly grit and working memory capacity and how such links may impact achievement outcomes, provided mixed findings. While previous evidence suggested that both psychological constructs, such as grit particularly the perseverance of effort component, and working memory capacity equally have a significant effect on L2 writing performance, especially in complex tasks (Zhang & Zhang, 2023), no relationships were found between grit and working memory capacity during performance in working memory tasks that required cognitive control and attention switch (Aguerre et al., 2022). Despite the lack of connections between grit and enhanced WM capacity performance, Aguerre and colleagues highlighted that gritty individuals were characterised by a cognitive profile that entails more cautious control. Drawing on insights from a latent profile analysis of EFL learners' writing self-regulation strategies in China, Zhang and Zhang (2024) reported no links between learners' self-regulation profiles and their language aptitudes and WM compared to differences found in relation to learners' L2 grit and self-efficacy and their profiles of writing self-regulation. Yet, Teng and Zhang (2024) observed that WM and self-regulation independently had an impact on writing performance of Chinese EFL learners in multimedia writing environments. Nonetheless, the study revealed no significant correlation when examining the impact of these variables together on writing outcomes. Despite the apparent lack of clear connections between self-regulation and WM, correlational evidence was demonstrated in investigating the association between lower WM capacity and limited use of self-regulation, especially in relation to mental contrasting (Sevincer et al., 2024). Clearly, discrepancy exists with the literature concerning the effect of individual differences in WM and persistence related constructs on writing achievement outcomes, providing a good reason for this study to examine the potential interplay between these variables in relation to Saudi EFL learners' writing

outcomes. This is important as links have been documented between WM and creative problem solving, particularly among a sample of gifted students in a Saudi university (Al-Shamy, 2020).

In addition, further links have also been recognised between academic buoyancy and cognition (Khojasteh et al., 2022; Putwain, Connors, Symes, & Douglas-Osborn, 2011). Putwain et al.

(2011) reported that academic buoyancy is linked to adaptive cognitive processes as buoyant learners were found to be able to adjust their self-beliefs. In addition, Khojasteh et al., (2022) offered support to the impact of cognition on academic buoyancy through assessing whether a cognitive and metacognitive strategy intervention affected Iranian learners' academic

buoyancy. The researchers found significant increases in learners' academic buoyancy in the cognitive and metacognitive intervention groups compared to the control group ($p < 0.05$). The findings of improvement in students' academic buoyancy provide a compelling case for

investigating whether buoyant learners may also have enhanced WM functions. While there is evidence of the indirect impact of persistence related constructs on academic achievement and cognition, this impact may become questionable if the cognitive-affective intersection remains inadequately explored. Taken into account in this study, the cognitive-affective

intersection can be seen through studying whether learners display varying profiles of persistence related constructs, specifically grit and buoyancy, and cognitive-psychological beliefs in terms of self-efficacy and whether such profiles have an impact on writing

achievement outcomes and WM executive functions. Reconceptualising the impact of grit, buoyancy and self-efficacy on academic performance through the PsyCap framework and WM executive functions can improve the understanding of the cognitive-psychological links

underlying persistence-performance relationship. This study uses the Psychological Capital (PsyCap) alongside the executive attention framework that highlights attention control to test the potential links between complex cognitive processes such as WM executive functions and variations in learner academic persistence and L2 achievement outcomes.

2.6.1 A brief background of the PsyCap

The PsyCap capitalises on one's personal characteristics beyond human and social capital that centre around what and who one knows (Luthans et al., 2007), often described as the HERO construct, encompassing Hope, Efficacy, Resilience and Optimism. These are seen as state-like, malleable capacities that can be enhanced and developed and have an impact on performance (Luthans & Youssef, 2004; Luthans, Youssef, & Avolio, 2006). Luthans et al. (2006) asserted while each component of PsyCap is theoretically unique, the four share common processes, underlying striving for success. Traditionally, the PsyCap framework has been developed to study organisational management and leadership (Luthans & Youssef, 2004). Since its inception, the PsyCap has been positively linked to job satisfaction and performance of employees (Luthans et al., 2007), work engagement (Paek, Schuckert, Kim, & Lee, 2015), and coping and well-being (Rabenu, Yaniv, & Elizur, 2016). In addition, there is a recognition that resources of the PsyCap have a positive effect on academic outcomes among university students such as academic performance and satisfaction (Li, Che Hassan, & Saharuddin, 2023; Ortega-Maldonado & Salanova, 2017), and academic engagement (Martínez, Youssef-Morgan, Chambel, & Marques-Pinto, 2019; You, 2016).

In order for the PsyCap to impact academic performance, Luthans et al. (2019) stated that PsyCap resources should not be viewed as fixed or momentary characteristics; rather, they progress dynamically whereby trait-like components prompt cognitive processes to shape performance. This is in line with Li et al. (2023) who conducted a large-scale review of 43 papers investigating academic PsyCap between 2012 and 2022 and unveiled that personal characteristics such as motivation and self-esteem are antecedents of PsyCap resources. They added that these factors contribute to the evolution and development of academic PsyCap resources, which in turn influence academic outcomes. The interplay between the PsyCap resources to shape performance seems to be supported by the large body of research that supports the effect of academic persistence related constructs on academic achievement outcomes through self-efficacy across different domains, including STEM subjects (Larson et

al., 2015; Wang, 2013; Zeldin, Britner, & Pajares, 2007) and English (Alhadabi & Karpinski, 2020; Bai & Wang, 2020; Li, 2022; Thompson et al., 2019; Yang et al., 2022). Furthermore, as outlined in the introductory chapter, self-efficacy is regarded pivotal for understanding persistence-performance relationship in language learning (Graham, 2022).

In the field of EFL research, PsyCap resources are recognised collectively as a predictor of English learners' engagement in China (Wu & Kang, 2023), Taiwan (Chen, Lin, Lin, & Lo, 2022; Lin, 2020), and Korea (You, 2016). Evidence from investigating some PsyCap resources separately, especially resilience and self-efficacy, has also reported the significant role of these factors in enhancing English learners' motivation and language learning in online environments (Abdolrezapour, Jahanbakhsh Ganjeh, & Ghanbari, 2023). Furthermore, research has found that the PsyCap resources strengthen the impact of personality factors, especially grit, on academic persistence and performance (Li et al., 2023; Luthans et al., 2019). Similarly, Safriani and Muhid (2022) found that both PsyCap resources and buoyancy had significant effect on how Indonesian senior high school students adjusted to a new learning environment. Despite the mediating effect of PsyCap on academic outcomes (Luthans et al., 2019), the cognitive component of the PsyCap is rarely explored beyond self-efficacy. It is believed that the potential relationship between PsyCap and purely cognitive predictors, for example, especially in academic contexts remains unclear and warrants further investigation (You, 2016). It seems hence essential to understand how components of the academic PsyCap, particularly academic resilience and self-efficacy, may impact abilities that are cognitive in nature beyond mere insights gleaned from learners' self-perceptions. This may, for example, entail exploring the connections between learners' characteristics of components of PsyCap including persistence and self-efficacy together with learners' higher order cognitive processes. Although previous studies underscore that non-cognitive constructs of persistence are not entirely devoid of cognition, the nature of the cognitive-affective dimension of academic persistence is not yet fully understood and hence considered in this study.

2.6.2 Why Working Memory (WM) Executive Functions?

The important role of complex cognitive processes in L2 language learning has received substantial attention over the years (Baddeley, 2003; Juffs & Harrington, 2011). The L2 research on cognitive processing, especially working memory capacities, has shown a significant impact of WM on a wide range of skills including reading and comprehension (In'nami, Hijikata, & Koizumi, 2022; Shin, 2020), composition in relation to syntactic complexity (Güvendir & Uzun, 2023; Li, 2023) and lexical complexity (Vasylets & Marín, 2021), and listening comprehension (Namaziandost, Hafezian, & Shafiee, 2018; Satori, 2021). Juffs and Harrington (2011) argue that the L2 domain is key for discerning the influence of WM on L2 performance, especially when attention is emphasised. A similar emphasis on the role of attention control was highlighted in the study of the impact of WM in areas involving 'cold' or rational reasoning and 'hot' or affective elements of cognition (Unsworth, Heitz, & Engle, 2005). This distinction between hot and cold cognition in the study of WM may offer valuable insights into the use of WM to study the cognitive-affective dimension of persistence-related constructs. WM is defined as a cognitive system necessary for the temporary storage and manipulation of information (Baddeley, 2003). This system is characterised by its restricted capacity to retain and process information as new information is added to the cognitive load (Hazan-Liran & Miller, 2017). According to Baddeley (2003), WM consists of multiple components, including the phonological loop, visuospatial sketchpad, central executive, and the episodic buffer. The phonological loop subsystem is responsible for temporarily holding and processing phonological information whereas the visuospatial sketchpad deals with visual, spatial and kinaesthetic information. The episodic buffer binds information from the phonological and visuospatial sketchpad subsystems into cohesive episodes to be then integrated with long-term memory (Baddeley, 2003). The central executive controls all other subsystems and directs attention and inhibition of interfering information— often considered crucial for language learning and use (Juffs & Harrington, 2011; Javan & Ghonsooly, 2017). WM capacities that involve retention and processing, attentional

control and inhibition, and cognitive flexibility are key elements of the executive functions (Javan & Ghonsooly, 2017).

In studying the impact of English language proficiency on executive functions among EFL learners in Iran, Javan and Ghonsooly (2017) found significant differences between advanced EFL and beginner groups ($p < 0.001$) in WM Span tasks and Wisconsin Card Sorting test for cognitive flexibility. However, the Stroop task revealed no mean differences in relation to selective attention and inhibition ($p = 0.2$) between the advanced and beginner groups. Although the researchers asserted that learners' language effort in the advanced group could signify the improvement in the group cognitive ability and working memory, they failed to explain this possible link through an examination of learner characteristics. The limitation of the scope of this study suggests the need to explore WM executive functions further through a person-centred approach. For Unsworth et al. (2005), the impact of components of WM executive functions on aspects of hot cognition such as stress or depression can be understood through a focus on attentional control. They additionally postulated attentional control in relation to active retention of information and inhibition of interfering distractors.

The executive-attention focus has been highlighted as the core to the study of differences in WM capacities (Conway et al., 2005; Kane & Engle, 2002). Kane and Engle (2002) contend that the essence of WM capacity is not centred on the capacity to retain information, but rather the ability to maintain information while simultaneously inhibiting interfering distractors. Therefore, the present study operationalises WM in relation to dual processing and individuals' ability to control attention and inhibit distractors, and thus uses span and Stroop measures. WM span tasks may be useful in assessing individual differences concerning storage and manipulation of information whereas the Stroop measure can provide information about how individuals differ in their abilities to inhibit irrelevant information (Javan & Ghonsooly, 2017). Therefore, and through the lens of WM executive functions, this study examines the relationships between learners' characteristics of grit, buoyancy and self-efficacy and their performance in WM span and Stroop tasks. Investigating this may contribute to filling the void in understanding the cognitive-

affective dimension of academic persistence. As discussed in the next section, a shift towards a person-centred approach may elucidate this dimension better while align with the literature call for understanding the links between persistence and achievement focusing on learner archetypes (Aguerre et al., 2022; Maaliw et al., 2022).

2.7 Towards a person-centred approach: an overview of grit, buoyancy and self-efficacy literature

It is clear from the review above that the literature stresses the interplay between constructs of academic persistence, self-efficacy and academic achievement outcomes. However, the reliance on testing associations among these variables may oversimplify the inherently nuanced individual differences of these variables. This in turn may have contributed to the lack of clarity in relation to the dimensions and structures underlying grit, buoyancy and self-efficacy. While providing useful information in terms of correlation, the literature remains unclear concerning how individuals manifest unique profiles of grit, buoyancy and self-efficacy and whether their profile memberships relate to their writing performance and WM functions. Thus, a person-centred approach, such as cluster analysis, is likely to uncover learner inherent characteristics of these constructs, providing information that transcends the confines of testing associations. In particular, clustering approaches may provide valuable insights by identifying specific learner types, allowing educators to focus on broader groupings rather than trying to address each individual difference separately, especially in larger class sizes. Of relevance to this study, clustering learners with similar profiles of grit, buoyancy and self-efficacy can possibly provide better insights into the malleability of these constructs in several ways. First, the segmentation of distinct patterns in the sample usually enables identifying varying profiles within the sample compared to variations across the entire sample as often tested through correlational analyses alone. The comparisons between the cluster membership identified through cluster analysis and profile members' responses in the interviews may capture how learners' profiles may evolve. By combining cluster and correlational analyses, a more precise testing of relationship

between grit, buoyancy, self-efficacy and achievement outcomes can be achieved. This may enhance the interpretation of the multi-factorial structure underlying academic persistence. This is because the use of partitional algorithms normally captures hidden groups that may show dissimilar levels of the studied constructs. While cluster analysis has become a fairly established method in L2 research, Plonsky (2015) emphasises that this method may be particularly useful for investigating individual differences in learners' positive attitudes and motivation, as well as their relationship to performance and other linguistic variables. Instead of creating groups based on their mean or median splits alone, cluster analysis typically detects whether groups naturally exist within data by assessing similarities among groups based on the measured variables. Several clustering methods were utilised in the study of the examined constructs. Table 2-1 provides a summary of literature that utilises clustering techniques to study either grit, buoyancy or self-efficacy, further highlighting that the clustering approach is not clearly established in the literature.

Table 2-1 Cluster Analysis in Grit, Buoyancy and Self-efficacy Research

Study	Context	Clustering variable and identified clusters	Clustering approach and algorithm	Remarks
Postigo, Cuesta, Fernández- Alonso, García-Cueto, and Muñiz (2021)	A longitudinal study conducted in Spain, examining student transition and their school performance in	Grit (three groups: gritty, industrious, and careless)	Latent Cluster Analysis	Merely focusing on grit (Sample cohort: junior high school)

	mathematics and Spanish with a large sample of 4,853 students between 10 and 14 years old			
Scheidt et al. (2021)	Investigate 28 noncognitive factors, including personality traits, grit, mindfulness, motivation, belongingness, self-control, test anxiety, to determine engineering students' profiles based on their noncognitive factors in general. Data were gathered from 2339 engineering undergraduates	Noncognitive factors including grit (four clusters of noncognitive factors: typical cluster; high positive noncognitive factors; low motivation and low openness; and finally, a cluster with negative cognitive factors specifically, without feeling of support from faculty and peers.	Probabilistic clustering approach, using Gaussian mixture modelling	A combination of positive and negative noncognitive factors including grit and anxiety. (Sample cohort: undergraduates)

	in the United States.			
Datu and Fong (2018a)	Study the links between grit and academic functioning in relation to test emotions among 1,051 Chinese primary school students	Grit (three clusters: high perseverance and high consistency; high perseverance and low consistency; low perseverance and high consistency)	Ward's hierarchical cluster analysis and k-means cluster analysis	Focusing only on grit profiles (Sample cohort: primary school students) It examined the two components of grit (effort and interest) simultaneously
Maaliw et al. (2022)	Investigate the relationship between grit and academic and professional achievements in an online course among 500 active accounts in an online course for tertiary students between 2014 to 2017.	Grit (two groups: high and low)	density-based spatial clustering (grouping together data points that are close to each other to form a dense region)	A focus on grit only. No correlation between grit levels and academic achievement in the online course; however, correlations were found between grit levels and professional achievements.

Dehkordi et al. (2021)	Examine the relationships between grit profiles and L2 achievement among 384 EFL students in Iran.	Grit (three levels: high perseverance and high consistency; high perseverance and low consistency; low perseverance and high consistency).	Ward's hierarchical cluster analysis	It focused on grit and the Big Five personality traits. It examined the two components of grit (effort and interest) simultaneously.
Teimouri et al. (2022)	Looked at the effects of L2 aptitude and L2 grit on L2 achievement among 236 English-major university students in Iran.	Grit (four cluster levels: high grit and L2 aptitude; low grit and L2 aptitude; high grit and low L2 aptitude; high L2 aptitude and low grit	K-means method	It highlighted grit and L2 aptitude through a variable-based (i.e., regression and t-test) and learner-based (i.e., cluster) analyses
Putwain and Daly (2013)	Studied the links between test anxiety and academic buoyancy of 469 English secondary school students in England during	Buoyancy (three clusters: high test anxiety/low academic buoyancy; mid test anxiety/mid academic buoyancy; and low test anxiety /high	hierarchical cluster analysis using Ward's method.	Focusing on test anxiety and academic buoyancy. Buoyancy was examined as a protective mechanism in

	their academic performance in a programme leading towards the school leaving qualification and based on their General Certificate of Secondary Education (GCSE) data.	academic buoyancy).		relation to test anxiety. Highlighting academic buoyancy in general and in relation to test anxiety among English native speakers.
Yun et al. (2018)	The links between self-efficacy, strategic self-regulation, persistence, ideal L2 self, anxiety, teacher–student relationship, L2 buoyancy and L2 achievement among 787 L2 college learners	Buoyancy/self-efficacy (five clusters: the thriver, the engaged, the striver, the dependent, the disengaged)	Not specified	Buoyancy was a criterion variable to validate the cluster model i.e., was not included as a clustering variable in the cluster model. High levels of self-efficacy predicted high levels of buoyancy. Thriver

	in South Korea to identify students' profiles of buoyancy			cluster was high in self-efficacy thus was high in buoyancy
Kim, Wang, Ahn, and Bong (2015)	The study aimed to identify the profiles of ESL learners' self-efficacy belief in relation to self-regulation in L2 learning among 167 undergraduate students in Korea.	Self-efficacy (three clusters: high, low, medium)	Latent Cluster Analysis	Female students had high membership in high and medium profiles compared to their male counterparts. L2 self-efficacy in general
Chen and Lin (2009)	The study examined the role of writing self-efficacy and English anxiety in relation to writing performance in a general English proficiency writing test among 120	Writing self-efficacy, English anxiety, writing performance (three clusters: high, low, medium). Cluster 3 high academic performance, high self-efficacy, and low English writing anxiety; Cluster 2	K-means analysis	Demonstrating clusters of writing self-efficacy based on demographic variables, including program of study. Investigating EFL at university level.

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	university students in Taiwan enrolled in different programs.	low writing self-efficacy, high English writing anxiety, and medium writing achievement; Cluster 1 medium writing self-efficacy, a medium English writing anxiety, and low writing score.		The study is relatively old.
Pawlak, Csizér, and Soto (2020)	It investigated the role of self-efficacy and motivation concerning the use of self-regulatory strategies among 70 university students in Poland who had an experience of studying abroad.	Motivation and self-efficacy (three clusters: high motivation strong self-efficacy; low motivation weak self-efficacy; low motivation strong self-efficacy)	hierarchical clustering.	Focusing on general self-efficacy beliefs in relation to motivation. Sample is limited to participants with study abroad experiences. No mention to specific self-efficacy beliefs in relation to

				achievement and performance
Alhadabi, Al-Harthi, Aldhafri, and Alkharusi (2023)	It examined the plausible learner profiles of motivation, self-control and grit in relation to their levels of tolerating ambiguity.	Three clustering profiles: unmotivated and undisciplined students with low grit, moderately motivated and disciplined students with average grit, highly motivated, gritty and disciplined students.	Latent Profile Analysis	Investigating grit, motivation and self-control from different university student samples in Oman and Egypt, including males and females akin to their ambiguity tolerance. It does not look at grit, buoyancy and self-efficacy simultaneously and among EFL English major students in relation to a specific language learning domain.

2.8 Summary and Conclusions

This chapter introduced the theoretical framework of the study by highlighting the multifaceted nature of academic persistence. Investigating grit and buoyancy as pillars of persistence may address the conceptual overlap between them as it is inherently prominent in persistence. Although the literature indicated that grit and buoyancy are conceptual correlates, how they correlate and potentially contribute to academic performance and cognition remain poorly explored. As for the link between academic persistence and L2 achievement outcomes, the reviewed literature highlighted self-efficacy as an important factor to facilitate the understanding of this relationship. However, the bulk of research seems somewhat confined to investigating grit, buoyancy and self-efficacy broadly and in relation to general L2 achievement outcomes. Almost all of the reviewed studies drew separately upon grit, buoyancy or self-efficacy theories to understand how L2 learners' persistent efforts could impact their achievement outcomes, using primarily quantitative measures through testing correlations alone. Still, empirical evidence relative specifically to the role of grit, buoyancy and self-efficacy within a specific language domain is seriously lacking. Without any empirical evidence, it is doubtful to assume that the relationships between academic persistence and overall L2 achievement would also be applicable to explain how academic persistence may impact writing achievement and WM functions. While the literature has in fact loosely offered insights into the significance of grit (Shafiee Rad & Jafarpour, 2023; Zhang, 2023; Zhang & Zhang, 2023) and buoyancy (Wang & Xu, 2023; Xu & Wang, 2023) in L2 writing individually, the intricate connections between these constructs along with the role of self-efficacy and their potential effects on writing achievement and WM functions have been left unexplored. While the literature alluded to the cognitive-affective dimension of academic persistence, it remains opaque how grit and buoyancy may operate within EFL contexts, and how they relate to writing achievement outcomes and cognition. Using a mixed-methods approach, this research aims to

fill these gaps, addressing the various unanswered questions concerning whether first year EFL Saudi female college students demonstrate distinct profiles of grit, buoyancy, and self-efficacy in writing? How do the identified profiles relate to L2 writing achievement and WM capacities of the examined sample cohort? What does the relationship, if any, reveal about students' profiles? To what extent do students' persistence experiences inform the understanding of their profiles and the underlying dimensions of academic persistence? The next chapter lays out the research design intended to achieve this.

Chapter 3 Research Methodology and Design

3.1 Chapter Overview

This chapter outlines the methodological choices related to the design, the process of collecting data and the execution of the current study. Accordingly, it first discusses the philosophical underpinnings of the research. This is followed by a discussion of the research design, participants, sources of data and approaches to data collection and analysis. The chapter also explains the rationale behind the chosen instruments. Finally, the chapter concludes with a summary of the actions taken to address issues relevant to ensuring research quality and ethical procedures that are crucial to the execution of the research.

3.2 Objectives and research questions

As introduced in the previous chapters, the present study aimed to investigate the potential links between academic persistence and its related constructs, particularly grit and buoyancy, and writing course grades and WM of EFL Saudi female first-year university students. It was further developed to investigate the underlying structure of academic persistence as perceived by the participants. More specifically, the study sought to address the complex relationships between learner persistence constructs, and the potential role of self-efficacy beliefs in relation to students' writing grades and performance in WM tasks with a particular focus on the cognitive-affective dimension of academic persistence. Most previous studies on grit and buoyancy tend to rely heavily on reductionist quantitative measures, limiting the conclusions that can be drawn (Datu & Yang, 2019; Datu et al., 2017b; Xu & Wang, 2023). Therefore, it is not surprising that problems concerning the complex nuances in concepts and measurements still persist. For instance, how the constructs are related and understood has yet to be examined;

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hence, the current study utilised quantitative and qualitative measures in order to address this problem and answer research questions listed in Table 3-1. It then compared both datasets in order to build a comprehensive understanding of the role of grit, buoyancy, and self-efficacy in relation to EFL writing skill and WM functions. Such comparisons may unravel learner archetypes of grit, buoyancy and self-efficacy and the impact of these profiles on learners' writing scores and WM functions.

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Table 3-1 An overview of research objectives & questions

Research Objectives (ROs)	Research Questions (RQs)	Research Hypotheses	Measure Types	Analytic Approach
- Identify learners' profiles of grit, buoyancy and self-efficacy. - test relationships between grit, buoyancy and self-efficacy and students' writing	- What learner profiles can be identified based on learner characteristics of grit, buoyancy, and self-efficacy in relation to writing outcomes? - To what extent does learner performance	- Meaningful profiles exist in Saudi first-year female undergraduates based on student individual differences in terms of grit, buoyancy and self-efficacy in writing. - There would be	Self-report questionnaire WM tasks (Reading Span/ Stroop) Cloze Test (triangulated with data from Semi-structured/Stimulated recall Interviews)	QUAN strand: Descriptive statistics: compare means and frequencies, establish whether parametric or non-parametric procedures are followed.

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scores. - examine which constructs of academic persistence contribute(s) to the variance in the writing scores. - investigate the extent to which performance in WM tasks is related to academic persistence.	in the writing course differ based on their profiles of grit, buoyancy and self-efficacy? 3. To what extent does learner performance in WM tasks differ based on their profiles of grit, buoyancy and self-efficacy?	significant differences among the identified clusters in relation to their writing performance as measured by their writing scores. 3. There would be significant differences among the identified clusters in relation to their performance in WM tasks as measured by reading span and Stroop tasks		Cluster analysis Correlational analysis: regression
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• explore how female university students perceive writing persistence. • uncover students' experiences of dealing with writing	1. What roles do students' profiles of grit, buoyancy and self-efficacy play in shaping students' persistence in writing based on how members of the identified profiles: a) perceive academic persistence;		Interviews (<i>Semi-structured and Stimulated recalls</i>)	• QUAL strand: Thematic Analysis • Mixing of data strands: • Comparing across the two strands

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challenges. • describe the factors that can possibly encourage/discourage writing persistence as voiced by participants.	b) experience academic persistence; c) identify the role of their confidence?			
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As indicated above, the first three questions are quantitative in nature as they are concerned with identifying learners' profiles of grit, buoyancy and self-efficacy and testing relationships between the identified profiles and learners' writing achievement outcomes and WM functions. Answering these questions is likely to reveal information about the cognitive-affective dimension underlying academic persistence and its relevant constructs while assessing the extent to which learners' profiles of grit, buoyancy and self-efficacy may impact their writing scores and WM functions. This is key as the literature revealed inconsistent dimensions of grit in individualist and collectivist settings. While grit was first introduced by Duckworth et al. (2007) as a dual concept, a singular structure was proposed, especially in relation to academic grit (Clark & Malecki, 2019; Tang et al., 2022). Unlike the dual and singular conception, grit was also believed to comprise three dimensions in non-western settings (Datu et al., 2018b). The inconsistency is also apparent in relation to academic buoyancy. While the literature linked academic buoyancy to the idea of individuals' adaptive responses to academic setbacks to sustain motivation (Al-majd & Belton, 2024; Friala et al., 2023; Yun et al., 2018), few studies drew a distinction between adaptive coping and academic buoyancy (Putwain et al., 2015). In addition, the original academic buoyancy measure demonstrated academic buoyancy as a unidimensional construct. Nonetheless, studies examining academic buoyancy in terms of foreign language learning established a two-facet structure of academic buoyancy: dealing with study stress and coping with poor grades and criticism (Sudina & Plonsky, 2021). Such complexities found in the literature highlight the importance of understanding how these multifaceted constructs are perceived and experienced.

In order to address these questions, questionnaires, Cloze test, and WM task were used to collect quantitative data. Unlike the preceding three questions, question four is exploratory in nature. Specifically, it aims to uncover the meanings of persistence in writing as defined by

participants, learners' experiences of academic persistence in terms of their behaviour in dealing with setbacks, and how self-efficacy beliefs may relate to participants' persistence. To achieve this, interviews with learners were conducted. Clearly, answering these questions requires a design that would allow for exploring learning profiles, testing relationships, and capturing participants' perspectives of the investigated variables. Full details of the research design and the theoretical approach are discussed thoroughly in the next section.

3.3 An overview of the theoretical underpinnings

The use of research methods, approaches, and designs depends largely on the philosophical assumptions that researchers make about knowledge and the nature of the social world (Creswell & Clark, 2017). Indeed, understanding philosophical orientations is instrumental in developing the quality and rigour of research (Tomaszewski, Zarestky, & Gonzalez, 2020). In this regard, Mackenzie and Knipe (2006) confirm that such philosophical assumptions about the social world or ontology (i.e., what is reality?) and how researchers understand it or epistemology (i.e., what is the nature of knowledge?) influence the investigation and interpretations of social phenomena. That is, researchers can follow different theoretical paradigms in the way they study and interpret a particular phenomenon. As such, they may orient from a postpositivist position based on the general premise that reality exists independently of individual's viewpoints or stances; i.e., reality is shared, objective, and observable gained through empirical and scientific methods rather than being multiple and context specific (Ormston, Spencer, Barnard, & Snape, 2014). In other words, positivists hold that reality exists independent of researchers' beliefs and is governed by laws or theories—the

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researcher's role is to test or verify theories in order to understand reality (Creswell, 2013). To do so, as described by Creswell (2013) researchers postulate hypotheses, and collect data that either support or refute thereof. These processes are commonly used in quantitative research. On the other hand, researchers can follow a constructivist or interpretivist position to understand the different subjective meanings of reality as constructed by individuals—the role of researchers is to understand the different meanings that participants construct and the context in which meaning is constructed (Creswell, 2013). Interpretivism largely aligns with qualitative research (Creswell, 2013; Mackenzie & Knipe, 2006). While philosophical paradigms provide different lenses to the study of a phenomenon, the paradigmatic decisions that researchers make knit together the process of inquiry (Cohen, Manion, & Morrison, 2018). Moreover, researchers may not proceed from a specific orientation within the dual dichotomy of subjective constructivist paradigms versus objectivist positivism; instead, they may adopt a pluralistic or pragmatic paradigm whereby diverse approaches can be used based on the research problem (Tashakkori and Teddlie, 2003; Creswell and Clark, 2017).

Pragmatism focuses on the research problem in determining the approach to data collection and analysis. It draws from multiple methods; hence, researchers apply any approach or method to understand the research problem (Creswell, 2013; Mackenzie & Knipe, 2006). Mackenzie and Knipe (2006) posit that the pragmatic paradigm is most appropriate for researchers who intend to apply a mixed methods approach to understand a problem from different perspectives. The pragmatic position, therefore, directly guided the chosen design for this research. This is because this research aims to determine whether academic persistence and its related constructs can possibly impact EFL Saudi female undergraduates' writing scores; besides, it seeks to conceive the meanings of the investigated constructs as explained by learners. Considering the aims of this research, the mixed methods approach seems plausible to develop a 'fuller understanding' of the investigation, make comparisons across different data sets, and draw conclusions from the data (Mackey & Gass, 2015). Through a

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pragmatic lens, the study affirms that the paradigms complement each other by “draw[ing] from the strengths and minimis[ing] the weaknesses of both (paradigmatic positions) ... to offer the best opportunities for answering important research questions” (Johnson & Onwuegbuzie, 2004, pp. 15-16). Johnson and Onwuegbuzie (2004) define mixed methods as an approach that consists of different types of reasoning, including induction or exploring patterns, deduction or testing hypothesis, and abduction or making inferences about the best explanations to understand the results. In testament to this, for this research, both quantitative and qualitative data were collected; the quantitative component tested relationships while the qualitative portion sought to deepen the understanding of persistence as understood and experienced by students, the factors affecting learner persistence in the writing course, and learners’ confidence in their writing skills.

3.4 Research design

3.4.1 Mixed Methods

According to Creswell and Clark (2017), one approach to conducting a mixed- methods study involves collecting quantitative and qualitative data concurrently i.e., concurrent triangulation, analysing each set of data separately, and then mixing and comparing the results. They describe this approach as the convergent design (a.k.a. the concurrent or parallel design) that allows for a complete understanding of the research problem by comparing quantitative results with qualitative findings to “converge the results for enhanced understanding” (Creswell & Clark, 2017, p. 60). For this research, the mixed methods approach was employed to provide a comprehensive understanding of the interplay between learners’ profiles of grit, buoyancy, and self-efficacy, and their writing achievement outcomes and WM functions. Data from self-reports, Cloze tests, and WM tasks were analysed quantitatively, while interview data were analysed qualitatively. The data collection was concurrent, with no distinct sequential phases, allowing for an iterative approach. In the quantitative component and after developing and validating the measurement, participants were asked to complete a self-report questionnaire assessing grit, buoyancy, and self-efficacy beliefs in relation to writing. In the qualitative portion, learner participants participated in interviews to explore how they defined and experienced persistence in L2 writing, and how confident they were about their writing skills and effort. Results from both strands were analysed separately before being merged for comparison, emphasising equal importance of both quantitative and qualitative data in the interpretation process.

It was hoped that the triangulation of different types of data could possibly create a comprehensive understanding of the relationships among the investigated concepts in relation to EFL writing skill, particularly in the Saudi context. That said, the triangulation of the results of

each data set provides direct comparisons whereby the open-ended data offset data of the close-ended ones, allowing researchers to draw complete inferences of the investigation (Creswell and Clark, 2017). This appears especially important given that quantitative designs typically dominate grit and buoyancy literature. The oversaturation of grit and buoyancy literature with the investigation of correlations alone left a methodological gap whereby the meanings of the concepts were underexplored (Datu & Yang, 2019; Datu et al., 2016). Clearly, one source of evidence may be insufficient to fully understand academic persistence and its related constructs. Therefore, to test relationships and understand the meanings of the studied constructs, a mixed-methods convergent design was utilised.

3.4.2 Mixed Methods and academic persistence: a focus on grit and buoyancy

In the study of academic persistence and its related constructs, qualitative in conjunction with quantitative research designs offer a more holistic understanding while addressing extant theoretical and methodological gaps (Datu et al., 2016; Martin, Yu, Ginns, & Papworth, 2016). To this end, few studies utilised mixed methods approaches to study grit or buoyancy, whereas studies investigating the two concepts together in a mixed methods design akin to writing achievement outcomes have yet to be conducted, especially with students in EFL and ESL contexts. For example, Nazari and Oghyanous (2021) employed a mixed methods approach to study the relationship between grit, occupational stress, turnover intentions and psychological wellbeing among EFL Iranian novice and experienced teachers. Furthermore, Slone (2020) and Kannangara et al. (2018) discussed grit through a mixed methods designs among English native undergraduates in western contexts. With regard to grit in EFL research, Zawodniak, Pawlak, and Kruk (2021) followed a mixed methods design to compare the difference in grit among first, second, and third year Polish English major undergraduates. Likewise, a closer look at buoyancy literature reveals that scant literature employed a mixed methods design. Comerford, Batteson, and Tormey (2015), for instance, provided evidence of the association between buoyancy and disparity in school completion rates among young people in Ireland by means of a mixed

methods design. These studies individually investigated grit and buoyancy to validate relationships among the variables. However, they did not offer a cohesive comprehension of how these conceptually relevant constructs might impact academic achievement in a particular language domain. Although the literature has highlighted grit and buoyancy as conceptually linked yet distinct constructs that predict general language achievement outcomes (Sudina & Plonsky, 2021), evidence of how these constructs may operate at a language skill remains ambiguous. Despite the recognition of the cognitive-affective dimension of academic persistence (Chu et al., 2024; Luthans et al., 2019), the role of academic persistence in enhancing pure cognitive processes such as WM functions is still unclear. To the researcher's best knowledge, no studies have endeavoured to examine grit and buoyancy concurrently together with self-efficacy in relation to writing achievement outcomes and WM among EFL students in an Arabic context through a mixed methods approach. Therefore, this research attempts to take this further by investigating how such variables contribute to EFL Saudi English learners' writing skills and WM through a mixed methods design.

3.4.3 Moving Forward: context of the study

Prior to outlining the processes and methods for data collection, it is important to acknowledge the interruptions and methodological challenges that occurred throughout the process of designing the thesis; to explain explicitly what the present study does and does not aspire to achieve. Initially and prior to data collection, the original plan was to collect direct observational and behavioural data by means of eye-tracking procedures. However, this was later abandoned given the challenges encountered, especially in securing hardware devices and the potential inaccuracy of online tracking software. To solve this and to fill in gaps in literature, Cloze tests and WM tasks were included. Another challenge was relevant to insufficient data across all datasets, resulting in another cycle of data collection through attempts to reach out again to participants remotely. This limitation led to an extended time for collecting data which was more than was originally planned. A detailed description of the timeline and the different phases

in the recruitment process is provided in the discussion about the research procedures (Section 3.5).

Furthermore, the different sample sizes for each strand of data may pose another challenge to the interpretation and generalisation of the results. Addressing these shortcomings here was necessary in order to understand the results better and identify the complexities involved in carrying out mixed methods research. Equally, it is important to reiterate that this research focused on the investigation of the cognitive-affective dimension of academic persistence and its relevant constructs, especially grit and buoyancy alongside the role of self-efficacy and WM executive functions in relation to the writing skill of Saudi first year female undergraduates. It sought to understand how this population cohort perceived grit and buoyancy. Therefore, variables captured in this research and the interpretations of the results ought to be considered in relation to L2 writing achievement outcomes rather than general L2 learning outcomes, GPA or other language skills. The research focused primarily on perseverance of effort because this facet was a dominant predictor of performance and success—highlighted as “the most promising avenue of future research” (Credé et al., 2017, p. 31). While non-cognitive factors, especially personality factors such as grit, buoyancy, and self-efficacy, have informed the conceptual model for this research, it should be made clear that such factors are not devoid of cognition (Borghans et al., 2008). In fact, Borghans et al. (2008) emphasized that many personality factors do not operate independently of cognitive processes; rather, they are influenced by them. It follows that a dual conceptual perspective to investigating academic persistence, and its related constructs may best address the confusion about the nature of this construct and its components, how concepts are defined, and the extent to which persistence constructs can be measured.

3.4.4 Variables

The research focused on academic persistence in L2 writing in terms of grit and buoyancy, and the role of self-efficacy. The variables of interest were motivational constructs, including grit,

buoyancy, and self-efficacy and performance-based variables relating to WM scores and writing scores. In particular, the research sought to assess possible connections between learners' profiles of grit, buoyancy, and self-efficacy and their writing and WM scores. The independent variables were L2 grit and buoyancy, and writing self-efficacy beliefs. The dependent variables were writing global scores as measured by final grades and Cloze test scores and WM scores (Table 3-2).

Table 3-2 The study variables

Variable	Type	Description	Data source
Grit	Independent	Frequency and percentage of answers on self-report, mean scores (grit subscale)	Self-report Scale
Buoyancy	Independent	Frequency and percentage of answers on self-report, mean scores (buoyancy subscale)	Self-report Scale
Self-regulatory efficacy	Independent	Frequency and percentage of answers on self-report, mean scores (self-efficacy subscale)	Self-report Scale

Linguistic self-efficacy	Independent	Frequency and percentage of answers on self-report, mean scores (self-efficacy subscale)	Self-report Scale
Writing performance self-efficacy	Independent	Frequency and percentage of answers on self-report, mean scores (self-efficacy subscale)	Self-report Scale
Global writing scores	Dependent/Outcome	Writing final scores Correct answers on Cloze test	Teacher reported (final course transcript) Cloze scores
WM scores	Dependent/Outcome	WM index & reaction times	WM Span and Stroop tasks

3.4.5 Research Setting and Recruitment

The target population was all Saudi EFL female first year university students who study a compulsory academic writing course. A sample was recruited from one major university, located in Qassim region, Saudi Arabia. The Saudi setting was primarily chosen because there is a dearth of research on non-linguistic elements relating to academic persistence (Alamer, 2021; Alonazi, 2018), the writing skill of Saudi undergraduates is below the standard expected for EFL/ESL university students (Alharbi, 2019; Gaffas, 2019), and the fact that writing classes in Saudi tertiary institutions have the lowest attendance rates of all classes (Alkodimi & Al-Ahdal,

2021). The recruitment was restricted to Qassim university for logistical reasons as the researcher has access to this population cohort with several years of teaching experience at this institution, and students in this setting were considered as lagging in their writing skills (Alghammas, 2020). The university has recently followed a quarter/ trimester system instead of a two-semester system. According to this change, the university teaching year is divided into three main parts or semesters with some branches offering a fourth summer part. In each semester, learners progress to a new level. This means that learners could be referred to as level one, two or three while they are still largely in their first year according to the old system. In general, Qassim University has 13 branches, consisting of 38 colleges distributed across 12 provinces in the region, each of which offers different academic majors with independent gender-segregated faculties (Qassim University website, 2020). Of these thirteen branches, only nine include an English department.

The target participants consisted of first-year students in the examined setting who were available during data collection and registered in the academic writing course. In this sense, the total number of the target participants was N=98. Students were divided into three sections/groups. The three sections were open to all students; students self-selected the section based on their schedule and the registered courses in their study plan. Each group had a total number of 40, 16, 42 students, respectively. In general, students are required to a minimum study load of 12 credit hours and a maximum load of 20 hours per semester. As for the writing courses, it was necessary for students to register for the courses during the first year of registration. There were three academic writing courses; the first two were introductory and the third was an advanced writing course. Each course lasted for one semester, roughly not exceeding 15 weeks. The studied setting offered several programmes, including English and translations studies, Arabic, and Islamic studies. The English programme requires learners to complete a foundational year or provide an IELTS score of 4.5. It also has a set of compulsory and optional courses that learners need to complete as part of their study plan. During the first

year, for example, undergraduates in the English programme are required to take modules/subjects on academic writing and grammar.

For this study, only first-year Saudi university students were recruited. Frequently, first-year students study writing at the paragraph level; by the end of the course, learners are expected to write short compositions which are either descriptive or opinion paragraphs. Specifically, learners are expected to have their first experience with academic writing as a core course/module that requires a passing grade of 60 points. Therefore, more advanced students from Year 2 and above were deliberately excluded. This recruitment was followed in order to understand how first-year university students perform in writing and respond to writing difficulties. According to Tinto (2017), performance in the first year can provide information about how students are likely to proceed when university demands increase over their course durations. As indicated by previous research, Saudi university students often enter higher education with writing skills that are below the expected academic standard (Alharbi, 2019). This may suggest that more advanced students may have had more opportunities to develop their writing skills, which could introduce confounding variables related to increased language proficiency and academic experience. By focusing on first-year students, the study seeks to investigate students' profiles of grit, buoyancy and self-efficacy as they navigate writing challenges in their early writing development. For this group of students, L2 writing may pose considerable challenges as they often have limited L2 proficiency while striving to meet the demands of writing at university level (Ali & Zayid, 2022). Thus, including students from higher academic years would have a disproportionate impact on the results.

For this study, in total a convenience sample of sixty Saudi female English major undergraduates (n=60) participated in the survey, Cloze test and WM task held between January and May 2023. The recruitment and data collection took place at three points in time, just before participants had their mid-term exam, after they received their mid-scores, and after they received their final writing course scores. For the qualitative phase, ten students (n=10) based on their profiles of grit, buoyancy and self-efficacy participated voluntarily in the semi-

structured and simulated recall interviews. Each interview lasted approximately 20- 35 minutes. The study focused on female participants since education in Saudi Arabia is heavily gender segregated, leading to single gender or all-girls schools and universities.

Between September and early December 2022 and before the commencing of data collection for the main study, the instruments, especially interview and questionnaire were piloted. A pilot sample of twenty-two participants (n=22), who had similar characteristics to the main study sample, was recruited. Descriptive data analysis was run and rephrasing, and elimination of items were applied to the final version of the questionnaire based on the initial data analysis and respondents' suggestions. A follow-up interview was conducted with two participants to collect feedback about the format of the questionnaire, the clarity of items and instructions, the length of time to complete the questionnaire, language ambiguity, and difficulties of items. Based on the results of the pilot phase, a section that requires participants to include section number was added. The Arabic version alongside English translation was administered for the main study as suggested during the trial run. A section that required participants to self-report their writing grades was eliminated because some participants reported that they had not had their grades yet while others could not remember their scores. This led the researcher to collect final grades from writing instructors instead of students self-reporting their grades. Ideally, Babbie (2021) suggested that survey items should be disregarded, especially when respondents may not be entirely sure of their answers or feel undecided. In addition, some items were revised and eliminated, especially those that did not add new information. For example, two items from the academic grit subscale were eliminated because they were believed to repeat the same information that had already been asked. Demographic information about setting was removed since the main study was conducted in one setting. The next section details data collection procedures and timeline of the study both during the pilot and main phases of execution.

3.5 Research Timeline and Procedures

3.5.1 Phase 1: the pilot testing (between September- December 2022):

To run the pilot test, the questionnaire was administered online to a sample of 22 female English major from two different branches of Qassim university. The participants were mainly from levels two and three (i.e., corresponding to year one as each level represents a semester) with two who were in their final level (i.e., level eight or year four). Participants were approached through contacting two instructors to distribute the questionnaire invite among their students in WhatsApp groups. The questionnaire required participants to provide their contact information and indicate their interest to participate in a follow-up interview to test the interview questions. It involved an open-ended item that asked participants to provide suggestions and opinions about the items and the style of the questionnaire. The number of items was 39; participants took approximately between 25 to 35 minutes to answer the questions. Data from the 22 participants were analysed through performing preliminary analyses to ensure the reliability and validity of the research instruments. Based on the pilot data, the number of questionnaire items was reduced as participants felt that the questionnaire was quite long with some items were unnecessarily repeated. Therefore, two items from the Grit subscale were deleted. Initially, the internal consistency reliability was assessed using Cronbach's alpha, with ($\alpha = .67$). However, after the removal of the two items, the reliability for the Grit subscale was improved, demonstrating a higher alpha coefficient ($\alpha = .73$).

To identify the face validity for the interview questions, interviews were conducted online with two participants who expressed their willingness to participate. During the interviews, questions concerning writing persistence alongside concerns relevant to the clarity of the questionnaire items, the length of the questionnaire, and the challenges incurred were discussed. This phase was useful to ensure the reliability and validity of research instruments.

3.5.2 Phase 2: the main study (Between January - May 2023):

After the pilot phase, an access letter to the study main setting was sent via email to the Head of the English department at one branch of Qassim University. Following that, the field visit then was scheduled, and contacts with writing instructors were established. Between January and March face-to-face data were gathered. Before disseminating invites and with the help of the writing instructor, an announcement summarising the research aim and components was posted on the course blackboard for each group/section. After that, meetings during normal lecture time were scheduled, whereby the researcher introduced herself, explained her research and what the participation involved. The contact information and the place which I was allocated during my visit were shared. As the writing instructor was mainly using Blackboard and WhatsApp, I requested if I could be added to the course WhatsApp groups. Then a group for the research was created and those who expressed their willingness to participate in any cycle of the research were added.

After the first week of the field visit, an invite containing the survey link and QR code was disseminated among all WhatsApp groups. The researcher then approached the target sample in each group again during the last 30 minutes of the regular lecture time to promote student involvement, respond to their inquiries, and understand any obstacles that may have arisen. Again, students were given access to the link and the QR code for the questionnaire. Drawing from contacts with participants, the survey was made available between January and March. This was also decided due to the data collection occurring close to the exam times. Relevant L2 research on administering questionnaires has suggested strategies to increase response rate, such as creating a positive climate for administration by allowing enough time to reduce any anxiety (Dörnyei & Taguchi, 2009).

With the assistance of the writing course instructor, students were informed that a lecture would be assigned to the researcher. The lecture session was two-hour long for each group/section, exactly as it was scheduled in their timetable. Students were informed that

during the session with the researcher, the writing teacher would not be present. To encourage their participation and as was recommended by their teacher, a bonus mark was given for those who participated in all the research phases. In addition, students were informed about the nature of their participation and what their participation involved. The individual sessions with each group allowed for introducing and administering the WM and Cloze test tasks. The class sizes for each group varied between 30, 13, and 27 participants during the two-hour administration session. Students were also encouraged to participate in the interviews and were given the option to choose whether to participate online or in person.

Prior to the session, students were asked to bring their iPads or laptops if they opted to participate in the WM task. The Cloze test was distributed as hard copies in a pen and paper format. In the first hour, the researcher highlighted again information about the study, its phases, and how the data would be handled. Students who were willing to participate received copies of the Cloze test and were given approximately an hour to answer the test. In the second hour, the WM task was illustrated. Students were informed that practice sessions at the beginning of each task were provided. However, some obstacles, specifically logistic, were encountered since this task was adopted from validated measures and was not piloted with a Saudi sample prior to the execution. In particular, participants experienced internet connection problems and those who were using iPads were not able to move between tasks. To resolve this, some participants from this group were invited individually to the researcher's office to complete the task using the researcher's internet and computer while others took the tasks at home. Further, the other groups were asked to refrain from using their iPads or phones in completing the task. The same session structure was followed with the other groups whereby the first hour was for introducing the research and the presentation of the Cloze test on paper. The second hour was devoted to the WM task.

While some participants took roughly 20 minutes longer than their peers did to answer the Cloze test, they were reminded to read at their normal reading pace. The Cloze test was initially marked, using a holistic approach without providing any feedback to the participants. Feedback

was only shared with those who participated in the stimulated recall interviews. Immediately after the two-hour session, participants who expressed their interest to participate in a stimulated recall interview were invited. This led the researcher to adopt a holistic analytical assessment approach and to ensure that recall would not be affected by any delay. At a later stage, a more detailed analytical scoring was followed in which a score was given to the exact correct answer and Yang's (2014) summary writing scoring rubrics was used to mark the summary task. A detailed discussion of the scoring is given in the discussion of the measurements (Section 3.6.2). The stimulated recalls were arranged based on participants' availabilities and preferences. With three interviews conducted after the test, two were arranged for after at a later time within the same day while the others were conducted either after one or two days of Cloze participation. Semi-structured interviews were arranged based on participants' availability and preferences. Some interviews were conducted in person in the researcher's office while others were conducted online. All interviews were later transcribed and translated into English for further analysis. During this first cycle of data collection, a total sample of 67 ($n=67$) participated in the questionnaire. However, a small sample size of 21 participated in the WM task with only 39 students taking part in the Cloze test. Likewise, thirteen students participated in the semi-structured interviews whereas seven took part in the stimulated recalls.

Given the insufficient participation, another cycle of data collection was decided since the aim of the research was to test relationships and understand learners' profiles of grit, buoyancy and self-efficacy in writing, using a triangulated approach in order to compare results across different datasets. To recruit participants, a table was created using Word document to compare datasets based on participants' university IDs. During this, data from questionnaire, WM, Cloze, and interviews were compared. The comparisons across all datasets made it easy for the researchers to approach participants again to participate both in Cloze and WM tasks. After that and based on students' profiles, interviews were conducted. Accordingly, participants were contacted again at the end of March through their writing instructor and by using their

university ID numbers and profiles. Participants who agreed were contacted individually to arrange for the tests and subsequently the interviews. As this round was entirely performed online, participants were approached, and reminders were sent several times both by writing and voice notes. This round of data gathering resulted in recruiting comparable datasets that could be linked to participants ID numbers: 39 participated in the WM task, 21 in the Cloze test, and ten interviews. Quantitative data were stored in an Excel file, consisting of different sheets for each instrument. Interviews were translated into Arabic and transcribed before importing them to MaxQDA. In what follows, a comprehensive overview is provided of the relevant measures used to collect data to answer the research questions. Although the research emphasises quantitative and qualitative datasets equally, quantitative measures are presented first before discussing qualitative ones. As such, the intention behind the sequence was to unpack each measure in granular details. Besides, uncovering the perspectives of participants concerning writing persistence and its components may become more meaningful only after testing the relationship among variables.

3.6 The Study Measures

3.6.1 Self-report Questionnaire:

A self-report questionnaire was used to understand learners' levels of grit, buoyancy and self-efficacy in order to profile learners based on their characteristics of these variables and subsequently test the links between learners' profiles and their writing achievement outcomes. Self-report surveys are commonly employed in studies that examine intrapersonal factors, latent traits or individual differences, especially those related to personality (Martin, 2013; Paulhus & Vazire, 2007). Paulhus and Vazire (2007) elucidated three types of self-report methods: direct, indirect and open-ended measures. Direct self-reports, according to the latter, involve individuals directly rating their personality traits—commonly used in the study of

positive personality traits. They illustrated indirect self-reports as measures that indirectly present the constructs being measured—mostly employed in the investigation of negative personality traits. The last category refers to self-reports that are not restricted to predetermined rating responses. For Paulhus and Vazire (2007), self-reports are useful especially in predicting outcomes and examining self-perceptions, enabling researchers to test numerous associations cross-sectionally. In the available grit and buoyancy literature, self-rated report methods have primarily been used to test the predictive power of relevant variables and subsequent outcomes. Duckworth et al., (2007) developed the Grit-O, while Duckworth and Quinn (2009) developed a shorter version of the scale, also known as Grit-S, to investigate grit as a predictor of success outcomes. Likewise, Martin and Marsh (2008) developed a buoyancy scale that asks participants to rate their buoyancy and other relevant factors to predict how participants perform when dealing with mathematical problems.

To conduct this research, the questionnaire was designed and administered, using the Qualtrics survey tool. The study used well-documented scales, including the academic grit scale (AGS) (Clark & Malecki, 2019), academic buoyancy scale (ABS) (Martin & Marsh, 2008), and L2 writing self-efficacy scale (L2WSS) (Teng, Sun & Xu, 2017). These subscales showed good internal consistency and reliability coefficients. Further, they were mostly designed to measure academic persistence in relation to academic-specific outcomes as opposed to general persistence or general outcomes. They have also been used to test academic persistence in non-western contexts (e.g., China (Tang et al., 2022) and South Korea (Yun et al., 2018)). The questionnaire consisted of four parts. In the first part, respondents were required to provide demographic information concerning participants' level, group section and their university ID. Again, level referred to the participant's year of study, with each semester of the academic year being viewed as a different level; section corresponded to the participant group, with the participant choosing the section that matched their timetable. The second part included questions that assessed persistence in writing (grit subscale one to eight), whereas the third part incorporated items relevant to responding to momentary or everyday writing challenges

(buoyancy subscale nine to twelve). The fourth part required learners to assess their L2 writing self-efficacy (L2 writing self-efficacy subscale thirteen to thirty-two). The response category consisted of five-point Likert response items, ranging from not at all like me to very much like me. The next section provides a discussion of each subscale.

First, the academic grit subscale consisted originally of 10 items based on a 5-point Likert scale with a very good internal consistency Cronbach's $\alpha=0.92$ (Clark & Malecki, 2019)— number of items was reduced to 8 after running the pilot test. A score of 1 or "not at all like me" indicated that the respondent did not closely fit the description. A score of 2 or "not much like me" denoted that the given statements did not closely resemble the respondents, whereas a score of 3 or "somewhat like me" suggested that the comments did indeed resemble respondents. A score of 4 or "mostly like me" likewise indicated that the phrases accurately described the respondents. Finally, a score of 5 or "very much like me" meant that the statements best described the respondents.

The second subscale was the academic buoyancy subscale. This consisted of four items, focusing on how respondents handled everyday writing difficulties. Such difficulties can be relevant to assessment measures, linguistic problems, and psychological factors. The original scale followed a seven-point rating with strong internal reliability coefficients at both the first $\alpha=0.80$ and second $\alpha=0.82$ phases and the test–retest value was $r=0.67$ (Martin & Marsh, 2008). However, the response categories were reduced to 5 points for the adopted scale. Thus, the responses ranged from 1 to 5 whereby 1 was the lowest score and 5 was the highest score, representing respondents' attitudes. This was done to keep the response format consistent throughout the questionnaire. Simms, Zelazny, Williams, and Bernstein (2019) recommended not to exceed a 6-point response option, especially in the study of psychological constructs.

The third subscale in the self-report was the Second Language Writer Self-Efficacy Scale (L2WSS)—comprised of 20 items to measure self-efficacy beliefs. In particular, it measured perceived self-efficacy in relation to three dimensions: linguistic competence in the composing

process (7 items), self-regulatory skills (6 items) and writing performance (7 items). The scale was evaluated for validity and reliability and revealed a robust internal reliability with strong coefficient values more than 0.80 (Teng, Sun & Xu, 2017). Notably, during the development and testing phase, the items were first translated into Arabic by the researcher manually. A back translation through translating the Arabic version back into English was first performed by the researcher. A second check was performed by a reviewer who is an Arabic-English bilingual and currently a doctoral student in applied linguistics. After the translation and the review, the Arabic translation was added alongside the English items. To maintain the confidentiality and anonymity of any identifying personal information, participants' university IDs were coded in a serial number order after final marks were linked to each case. Similarly, section numbers were not included in the reporting and analysis of the data. As subjective measures, nonetheless, self-report inventories alone cannot provide rigorous evidence because they are prone to respondent bias (Frey, 2018). In other words, self-reports need to be corroborated with other methods to ameliorate the validity of self-reported data. Recognising this limitation, the present study employed multiple methods to increase the credibility and validity of the research findings and results. A detailed discussion of the data analysis of this measure is provided in the next chapter.

3.6.2 Global Writing Score (based on writing final scores and Cloze Test):

To provide a comprehensive measure of writing, official writing course transcripts were obtained alongside a Cloze test. A global writing score was created, encompassing final writing course scores and Cloze scores. This was performed for several reasons. First, while L2 proficiency measures based on course grades and GPAs are common, there are concerns surrounding the use of such metrics alone in research (Brown, Plonsky, & Teimouri, 2018). Brown et al. (2018) condemned such metrics as often subjective, tending to emphasise achievement and content more than language proficiency. In support to this criticism, DiFino and Lombardino (2004) argued that course grades may not truly reflect students' proficiency. In the study of the

associations between motivational drives such as grit and university grades, Pleace and Nicholls (2021) recognised a grade gap that can affect grit/grade associations based on students' achievement outcomes alone. Compared to a course grade only metric, a global writing score, would yield a more reliable metric, allowing for discerning subtle variations in students' writing performance. Alongside the controversy over course grades as a research tool, the use of a global score was due to the nature of the obtained final course scores. A significant proportion of the students received high scores in the writing course, suggesting a potential inflation and distortion in the obtained grades. To mitigate this and improve the validity of this measure, a global score of two performance indicators was included. This approach aligns seamlessly with other research assessing individual differences in L2 learning in relation to phonological acquisition and cognitive abilities (Darcy, Park, & Yang, 2015) and in terms of differences in writing performance and L2 anxiety and motivation (Soleimani, Hamasaid, & Saheb, 2020).

From a methodological standpoint, most of the available literature on academic persistence mainly uses self-reports based on a Likert scale alone (Credé et al., 2017; Datu & Yang, 2019; Tinto, 2017), the present study nonetheless makes a step ahead by studying how learners persist during a challenging task and students' accounts of their performance. Previous evidence suggests that L2 learners' ability to deal with linguistic challenges under difficult conditions is conducive to better L2 and general achievement outcomes (Yun et al., 2018). Moreover, Nurjain, Salazar-Espinoza, Saenko, and Bina (2023) witnessed that EFL learners' academic buoyancy and their self-evaluations and reflections of their language learning have a direct bearing on the way learners behave when faced with challenges during the process of learning. Therefore, the methodological importance of using a Cloze test coupled with stimulated recalls lies not only in providing information about learners' language proficiency but also in observing how learners actually deal with challenges. In other words, Cloze test and stimulated recall interviews jointly may provide insights not only about possible relationship between persistence and writing performance, but also about the factors that may have

contributed to the relationship based on participants' actual behaviour and their accounts of the behaviour.

Cloze task was used given the restricted proficiency level of the participants and due to the nature of the test that often taps on multiple skills (Sadeghi, 2021). While Cloze test procedures have frequently been used as a measure of reading comprehension, Sadeghi (2021) questioned the validity of Cloze tests as measures of L2 reading comprehension alone. Based on the qualitative data from test-takers, Sadeghi reported that Cloze procedures are viewed to measure aspects beyond reading comprehension. Alsehibany and Abdelhalim (2023) provided empirical support for using Cloze tests as a measure of vocabulary use in academic writing, especially among Saudi undergraduates with limited language proficiency. The use of Cloze tests in their study revealed valuable insights into learners' use of language in academic writing, particularly for those with limited writing proficiency. Other research in EFL context e.g., (Sattar, 2022; Yaseen & Rasheed, 2022) also demonstrated Cloze tests as a versatile measure to measure language proficiency, especially writing performance. Sattar (2022), for instance, validated the use of Cloze as a measure of overall English language proficiency, especially among EFL Iraqi undergraduates. Specific to writing, Yaseen and Rasheed (2022) employed Cloze measures to assess the writing performance of third-year university students in Iraq.

In this study, the Cloze test consisted of two parts: fill in the blanks with the appropriate cohesive devices and summary writing. The task was developed and administered by the researcher. It was designed to assess students' writing proficiency and their behaviour in dealing with challenges in writing. The materials of the test were adopted from academic writing skill books for ESL learners and expected to support learners at an intermediate level of proficiency. Therefore, they were considered to be closely relevant to the participants' level and sufficiently acceptable to be used with the study participants. The materials consisted of two passages of general knowledge topics. Each passage provided a comprehensible input about the topic since participants were required to provide a summary of one of the provided passages.

As the participant pool was female only, the chosen topics revolved around general topics that could be understood by the participant cohort. These topics were in relation to gender differences in shopping styles and differences between new-born and one-year old children. These topics were chosen as a Cloze task to reflect as closely as possible the participants' level of proficiency while assessing how learners deal with challenges as they answer the Cloze and summarise the text. The passages were fairly similar in terms of length ranging roughly between 240 to 260 words. Prior to starting the Cloze task, participants were asked whether they were familiar with the passages before. None of them had read the provided texts before. Some participants completed the test manually in a paper-based format during writing class time. Others completed the test about an hour before the scheduled online interview. In introducing the test, participants were asked to read the passages silently to understand the texts and complete the blanks with the suitable answer. Participants were provided with four options and told to make a selection of only one correct option.

The test was a multiple-choice Cloze and followed rational deletion procedures rather than fixed-ratio or random deletion methods. This means that the deletion of words was not based on a certain deletion rate such as every 7th or 10th words rather only cohesive devices were deleted. The test had 11 Cloze items in addition to the summary task. The test was scored based on the accuracy of answers whereby each correct answer was assigned one point, corresponding to a total score of 11 points. Kobayashi (2002) reported different Cloze scoring methods including, the exact word scoring, the semantically and syntactically acceptable, and the semantically acceptable, but syntactically unacceptable. In this regard, the researcher suggested that aspects including the characteristics of the Cloze items, such as emphasising content or function words, and learners' level of proficiency influence the choice of a particular method. Most importantly, the researcher clearly pointed out that the exact word scoring method is often applied when the emphasis is on function words or on testing learners with low level of proficiency. A focus on accuracy, however, is unlikely to be effective when Cloze measures are used to test reading comprehension with learners of higher levels of proficiency.

Having this in mind and given the participants' limited language proficiency level, this study followed an accuracy-based scoring method. By using this method, it was possible to compare the scores of the participants objectively as the Cloze provided a proficiency measure alongside the final scores generated by the writing instructor.

The second part of the test required participants to choose one of the passages to write a summary of approximately 100 words. The rationale for including a summary writing task was to prompt learners to read the Cloze texts thoroughly and to observe how they actually perform in a complex writing task. Some summary cue words were provided in order to encourage learners to respond. Shi, Huang, and Lu (2020) advised that L2 learners can demonstrate their writing ability better when provided with writing prompts particularly during test performance. To score the summary task, Yang's summary scoring rubric (Yang, 2014) was used for several reasons. Firstly, the rubric was developed through adapting features of rigorous ESL assessment measures, including TOEFL iBT Test Integrated Writing Rubrics. Secondly, while the rubric is brief, it provides a comprehensive assessment of the content, form, and language use. Finally, the rubric is applicable for use in this study since it was primarily developed and tested among EFL undergraduate students with English proficiency levels ranging from low intermediate to advanced. The rubric evaluates summary writing within a five-level continuum whereby level 0 represents the lowest level in which the summary writing does not relate to the task, is not written in English or an exact copy of the original text. In contrast, level 5 represents the highest score whereby student's summary clearly presents all main ideas with appropriate links between ideas and uses a wide range of vocabulary with few or no language errors. Participants were to rely on their understandings of the original source to write the summary.

As mentioned above, students were informed that a lecture would be assigned to the researcher; the teacher would not be present, and that their attendance is optional. However, a bonus mark would be given for those who participate in all the research phases. Participants were clearly informed that the bonus mark would be assigned based on their participation in all the phases of the study and not on the basis of their correct answers to the tasks. In addition,

they were informed about the nature of their participation and what their participation involved. Most participants completed the test within the first hour— approximately 25 minutes extra were given when needed. The test was initially marked, using a holistic approach without providing any feedback to the participants. Feedback was only shared with those who participated in the stimulated recall interviews. Immediately after the test session, participants who expressed their interest to participate in a stimulated recall interview were invited. This led the researcher to adopt a holistic and generic analytical assessment approach before using an analytical scoring to ensure that recall would not be affected by any delay.

To score the Cloze data, an exact answer scoring approach was applied to the first Cloze part, namely the reading with fill in the gaps. The summary writing part of the Cloze test, on the other hand, was scored first by the researcher, adopting Yang (2014) summary scoring rubric, that ranged between 0 and 5. Next, 24 cases out of the 60 participants, comprising approximately 40% was scored independently by another rater who is a PhD holder and teaches in a similar setting. Before the scoring, the purpose of the study and the scoring criteria and rubric were explained. Two responses that were not included in the final analyses and were scored independently were used as a scoring practice. An Excel spreadsheet was created to compare consistency and agreement in the scores. The file was explored to SPSS to assess inter-rater agreement, using Cohen's Kappa. The Kappa coefficient is frequently used to measure the degree of agreement between raters in terms of the assigned scores, especially scores based on categorical scales. The Kappa value was 0.607, implying a moderate level of agreement between raters with a significant p-value below .001 (Table 3-3) (McHugh, 2012). Differences in scores were then discussed until a consensus was achieved.

Table 3-3 Inter-Rater Reliability using Cohen's Kappa Coefficient

		Value	Standard Error	Sign.
Measure of	Kappa	.607	.128	<.001
Agreement				

N of Valid Cases	24
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To further explore whether the number of variables can be reduced to a global score, a principal component analysis (PCA) was conducted. The results suggest a one-component structure for observing variance in learners' writing performance. This structure explained 73 % of the variance in the data with loadings above .70 (Table 3-4). Furthermore, a preliminary correlational analysis was performed among variables measuring writing. Writing final scores were related to both scores of the two parts of the Cloze test, the Cloze part ($r = 0.66$, $p < .001$), and the summary part ($r = 0.36$, $p = .005$), suggesting positive moderate correlations between writing scores and the Cloze test parts. Writing scores ranged from 60 to 100 with $M=86$ $SD=10.80$; Cloze scores from a maximum score of 11 to a minimum of 2 and summary scores from maximum 5 to minimum 0. To develop a global score for writing performance, writing final course grades and scores of the Cloze test were standardised, using z-scores. The standardised values were also used to detect potential outliers in the data whereby any extreme values significantly exceeding or falling below three standard deviations from the mean would be considered as an outlier (Cooksey, 2020; Kilgore, Collins, Miller, & Winer, 2023).

Table 3-4 PCA for Writing variables

Variables	Component 1
Summary scores	.72
Final scores	.84
Cloze scores	.89
Extraction Method: Principal Component Analysis.	

3.6.3 Working Memory Task (WM):

To answer the research question regarding the potential links between WM functions and learners' identified profiles of grit, buoyancy, and self-efficacy, two WM tasks were used, namely reading span and Stroop tasks. These tasks are deemed reliable and valid measures in the study of complex cognitive processes such as WM capacity (i.e., storage, processing, and manipulation) (Baddeley, 2003; Bull & Scerif, 2001), and executive functions, especially inhibition of distractors and selective attention (Miyake et al., 2000). Considering that the WM task was based on existing instruments and to ensure that the measurement was appropriate to collect WM data, different tasks that assessed complex WM functions were used. This was done because the use of multiple WM tasks can ensure a reliable and rigorous assessment of WM (Burgoyne et al., 2022). In addition, the use of well-developed and validated measures strengthened the possibility to minimise any ceiling effect and therefore capture true individual differences. In this study, the WM measure was primarily used to examine the extent to which variations in learners' profiles of grit, buoyancy and self-efficacy can possibly impact their performance in WM tasks. Therefore, the study operationalised WM in relation to dual processing and individuals' ability to control attention in the face of distractions. Specifically, it uses reading span and Stroop tasks to assess the links between learners' profiles of grit, buoyancy and self-efficacy and their WM functions.

The WM task was administered through Gorilla experiment builder (<https://app.gorilla.sc>). This online platform is considered a robust and reliable data collection tool (Anwyl-Irvine, Massonnié, Flitton, Kirkham, & Evershed, 2020). Only participants who completed the tasks were included. Thus, incomplete responses were discarded. The WM consisted of three parts. In the first part, participants were instructed to read the purpose and information about the study before giving their consent for participation. They were also asked to provide brief demographic data such as their university ID and level of study. They also had the choice to provide their email address. The purpose of the study and the instructions for each task were elucidated both in English and Arabic. In the second part, a reading span task was shown. The

reading span task was adapted from Stone and Towse (2015). Stone and Towse developed a Java-based working memory test battery (a.k.a Tatool). Originally, the test comprised seven WM tasks, including Verbal (digit, operation, reading) and VisuoSpatial (matrix, arrow, rotation, symmetry) span tasks. These tasks are available at <http://www.cognitivetools.uk>. They have been used and validated by the researchers. They are open-source and made available to researchers to use freely in accordance with their research needs.

The reading span task was included in particular for several reasons. First, the task does not only require retention, but encompasses dual functions, including storage and processing while simultaneously recalling stimuli. This is important because the study considers performance in complex tasks may depend on individuals' levels of grit, buoyancy and self-efficacy. In other words, participants who exhibited better grit, buoyancy and self-efficacy may perform better in WM tasks. More specifically, the use of complex task measures such as those that assess WM capacity and control of attention in suppressing irrelevant information can be helpful to predict the impact of performance in different situations such as on attention and comprehension (i.e., cold cognition) and on real-world or emotionally charged situations such as stress (i.e., hot cognition) (Unsworth et al., 2005). Thus, data obtained from performance in the WM task could possibly provide insights into how grit, buoyancy and self-efficacy may impact performance in daunting tasks, especially academic writing. The second reason for incorporating the reading span task was because of the nature of the task. Specifically, the task included linguistic stimuli that required task-takers to process and assess the veracity or logical accuracy of given statements, while at the same time they must remember digits as shown in their serial order. This is crucial as it can possibly provide rich information about individuals' cognitive processes and their L2 proficiency. This is in line with Juffs and Harrington (2011) who recognised reading span tasks as potential tests of individual differences in relation to L2 learning abilities.

The reading span task consisted of three trials at each of the three levels (i.e., two to four digit levels per set) to be recalled in correct serial order (storage component). At each level, participants completed three sets for a total of 9 items (i.e., a total of 27 digits to recall). As for

the processing component, the task also included 9 sentences that participants needed to process by deciding whether sentences shown make sense or not (see Figure 3-1). During this dual task, participants were required to remember the provided digits while simultaneously process the sentences through judging the meanings of the statements. The individual differences in the dual functions, namely remembering digits and processing sentences could account for the potential links between WM functions and learners' persistence. The judgments concerning the veracity of sentences served to ensure that students process information. Friedman and Miyake (2005) suggested that WM tasks with three trials per level can be sufficient, especially in studies using different measures. To ensure that participants understood how to respond to the task, the task began with practice trials. In the trials, participants received instant feedback on the screen. A red cross was shown to indicate a wrong response, and a green tick indicated a right one. The sequence of levels in the trials was randomised in an attempt to reduce task burden.

The opposite of dark is dark.



Figure 3-1 Illustration of Reading Span Processing Component

The third part of the WM task was a Stroop task. The task tested participants' abilities to control attention and inhibit interfering information. Typically, the task requires participants to focus on one thing while ignoring irrelevant information. In particular, test-takers were presented with the actual names of the colours (green, yellow, red, and blue one word click). They were then asked to report the colour of the displayed word on the screen while suppressing the semantic meaning of the word. This was done by pressing keys on the keyboard aligning with the colour (Q for red, W for yellow, O for blue, and P for green). During the trials the colours and actual names were set to match (i.e., congruent e.g., the word Green printed in green) or mismatch (i.e., incongruent e.g., the word Green printed in Blue). The assumption in using Stroop task (a.k.a. the Stroop effect) posits that paying attention to the semantic meaning of the word often impacts how individuals maintain focus in processing and identifying the presented colour. While both the reading span and the Stroop task required dual processing, the latter focuses on individual differences pertinent to active maintenance (i.e., maintaining the task goal that emphasises matching words with their corresponding colours), and conflict monitoring and resolution (i.e., monitor congruent word/colour and inhibit incongruent word/colour) (Kane & Engle, 2002; Schwieter & Wen, 2022). Indeed, Stroop task is not limited to storage and automatic processing but rather involves selective attention or controlled processing of one thing and activation of another (Gass & Lee, 2011; Keijzer, 2013). The WM tasks were completed in a single session. That is, students participated in the Stroop task immediately after they finished the reading span. As they did in the reading span task, participants had to read the instructions and took three practice trials before they took the actual test. Thereupon and after the Stroop practice trials, a score for correct answers (x out of 3) was shown.

3.6.4 Interviews:

The use of interviews was driven by the aim and design of this study to understand participants' perceptions of academic persistence and the potential role of their writing efficacy beliefs in relation to their writing outcomes. Specifically, interviews were utilised to respond to the

literature calls for exploring grit and buoyancy based on L2 learners' experiences (Datu et al., 2018b). Slone (2020) and Kannangara et al. (2018), for example, reported that the use of interviews may contribute to a deeper understanding of the contextual factors that may influence L2 grit. Similarly, Comerford, Batteson, and Tormey (2015), underscored the association between buoyancy and disparity in school completion rates among young people in Ireland based on qualitative evidence. Taken into consideration, the present study used two types of interviews, namely, semi-structured and stimulated recall interviews. The application of these types has been found effective in revealing the nuances of learners' unique experiences (Gass & Mackey, 2016). Gass & Mackey (2016) noted that while semi-structured interviews have the potential to uncover broader insights into how learners think and feel, retrospective recalls may offer a deeper understanding of learners' reflections during performance in specific tasks. In particular, the semi-structured interviews may elicit broad reflections from participants regarding their general past experiences of persistence. This approach is useful to uncover how learners perceive their past academic experiences of dealing with academic challenges (Datu et al., 2016). The flexible nature of semi-structured interviews may facilitate for the exploration of learners' diverse experiences of persistence across various contexts. Stimulated recalls, on the other hand, may especially allow for examining the relationships between non-cognitive characteristics and academic performance in situated contexts (Credé et al., 2017). Therefore, these two methods could capture both learners' general experiences of persistence as well as their reflections on a specific shared experience.

Traditionally, grit and buoyancy have rarely been examined beyond correlations (Datu & Yang, 2019). Perhaps one of the greatest strengths of using a mixed methods design in this study was the ability to examine grit and buoyancy from multiple dimensions. Research on academic persistence and its related constructs has been critiqued for reporting correlations based on grit or persistence scores alone without providing details of how individuals were challenged (DiNapoli, 2023). These criticisms may provide a strong case for the need to rethink the ways in which such constructs are measured. In addressing these limitations, this study examined

learners' understanding of grit and buoyancy and collected their reflections about their self-confidence and persistent experiences during participation in a Cloze task.

To achieve this and after the dissemination of questionnaires and Cloze tests, ten students participated in the one-off semi-structured and stimulated recall interviews. To establish rapport with the participants, I introduced myself as a PhD student and that I graduated from one branch of the same university and did my master's there before introducing my research as well as offered opportunities for participants to pose questions during the face-to-face meetings and through the provided points of contact, including my email and WhatsApp number. Interviews were conducted separately with each participant and held online and in person, depending on participants' preferences. Participants were allowed to choose whether they would like to be interviewed in Arabic or English to ensure they felt more comfortable in talking about their thoughts in detail. They were reassured that any information provided would be kept anonymously and securely. Each interview with the participants lasted approximately between 15 to 30 minutes. For the semi-structured interviews, questions were open-ended in nature around a set of topics, including the definition of academic persistence, writing difficulties, and teacher's feedback. In addition, participants were asked to think about any writing difficulty that they might have encountered, and the actions involved to overcome it. This was done to elicit responses regarding their experiences of grit, buoyancy, and self-efficacy and the factors that participants believed to contribute to thereof in writing. Only participants who agreed to participate in the interviews and have participated in the other cycles of data gathering were recruited. Some examples of the interview questions included "Describe any difficulties that you have experienced in the writing course?" "What did you do to respond to the difficulties, if at all? And how did you feel?" "How would you define responding to writing difficulties/ writing persistence?" "In your opinion, what factors can affect the way you deal with writing difficulties?" "How confident are you in your writing skill?" (Appendix C). For the stimulated recall interviews, the questions included "how did you feel when taking the test? " "How satisfied are you with your performance? " "What were you thinking, and why did you

choose this option specifically? ” “Did you have any difficulties when answering this part and if you did, how did you overcome them? ” “Did you have any thoughts about withdrawing or giving up? ”.

3.7 Summary of the Data Analysis Procedures

3.7.1 Analysing Quantitative Data

To answer the first research question in terms of identifying learner profiles, cluster analysis was used. Cluster analysis is a data mining and segmentation procedure that aims to meaningfully classify data sets into relatively small groups or clusters based on their similarities (Everitt, Landau, Leese, & Stahl, 2011). Cluster approaches can broadly be classified into hierarchical or non-hierarchical also known as partitional methods (Jain, 2010). Hierarchical cluster analysis begins with individual data points as clusters on their own then the algorithm gradually merges data points into larger clusters based on their similarity (Jain, 2010). The distances among the emerging cluster as groups are joined together can visually be examined through a tree-like structure, commonly referred to as a dendrogram (Hair et al., 2010). Large distances between the formed clusters suggest that the clusters are distinct from each other, whereas small distances indicate similarity among the clusters. Non-hierarchical methods such as K-means identify clusters simultaneously, ensuring that the merging of cluster is based on cluster centres rather than on previous and subsequent merging (Jain, 2010).

Plonsky (2015), who scoped the literature on the use of cluster analysis in L2 research, identified hierarchical clustering as the widely used method. Datu and Fong (2018a) explained that the exploratory results obtained through hierarchical clustering can best be supported using K-means method. In line with these recommendations, both clustering methods are used, namely Ward and K-means clustering techniques. Hierarchical clustering served as the base for investigating the optimal number of cluster solutions as the number of clusters is not predetermined, allowing for the exploration of clusters as they emerge naturally (Datu & Fong,

2018a; Everitt et al., 2011). The assumption underlying non-hierarchical K-means clustering is that the number of clusters is often assigned a priori and employed as initial cluster centres. This involves defining the cluster's centroid and iteratively assigning each data point to the nearest centre in order to minimise the distance between each data point and their cluster centres (Moubayed, Injadat, Shami, & Lutfiyya, 2020). The distance between data points and their cluster centres is calculated through Euclidean distance, which assesses the similarities within clusters and assign data accordingly. A smaller Euclidean distance implies greater similarity among members in the clusters of the examined variables (Everitt et al., 2011; Hair et al., 2010). The application of both hierarchical and non-hierarchical clustering techniques is often recommended (Datu & Fong, 2018a; Everitt et al., 2011). It was intended to explore the inherent structure of learner profiles of grit, buoyancy and self-efficacy and examine the underlying assumption that learners show distinct profiles of grit, buoyancy and self-efficacy, impacting their performance in writing and WM tasks. In the current investigation, clustering procedures were used to group learners based on their characteristics of grit, buoyancy and self-efficacy in order to determine if their profiles contribute to differences in their performance. In particular, the 60 participants were clustered on the basis of their responses to the questionnaire. After grouping participants, group differences were compared with their tests scores, specifically their global writing and WM scores.

To analyse WM data, a scoring approach based on accuracy in conjunction with reaction times (RTs) was used. RTs measure the speed in which participants quickly react to stimuli. To analyse WM data, a working memory index was created for the span task. For the Stroop task, accuracy scores were used to score congruent and incongruent trials. Higher recall/storage accuracy scores indicated better WM capacity, whereas lower scores suggested limited working memory. Reaction Times were measured in milliseconds (ms) and differences in RTs between clusters were compared. Lower mean RTs suggest that participants were more efficient in processing the stimuli quickly. In order to score the WM tasks, each participant's entry was identified based on their university ID. Only completed entries that could be matched to

participant's university ID were used. Similarly, as the study used a mixed methods design, only comparable data that can be compared across other datasets were included. The coding criteria were used consistently for both WM tasks. While the scoring criteria for WM tasks are not well-established in the literature (Conway et al., 2005; Friedman & Miyake, 2005), the current study employed a number of criteria to define the scoring scheme (See summary Table 3-5). In coding WM tasks, points were assigned to accurate responses. This means that each correct response was granted one point. The following conditions were followed to set the scoring scheme for both the reading span and Stroop tasks:

- Task completion = all components of the task have been completed.
- Accuracy of responses (scoring scheme 0= incorrect/ 1=correct).
- For the sentence judgment component of the reading span task, 1 point was awarded for a correctly judged statement; the total accuracy score of accurate sentence judgments was nine.
- For the digit span component of the reading span task, scoring was based on the number of digits correctly recalled in the correct order. For the digit span consisting of 3 trials of 2 digits= 6 points were assigned, 3 trials of 3 digits=9 , 3 trials of 4 digits=12 (thus the total number of the correctly recalled digits is 27 points.
- Span processing time based on RTs mean comparisons (slower/greater vs. faster/lower)
- For the Stroop task, 1 point was awarded for each accurate response i.e., 1 point when a participant correctly reported the colour of the printed word, and 0 was awarded if the meaning of the word was reported.
- RTs mean comparisons in congruent/incongruent conditions (slower/greater vs. faster/lower)

Table 3-5 Summary of WM tasks and scoring criteria

WM Task	Description	Scoring Scheme
Span	Participants are presented with numbers followed by a sentence that ranges in the level of difficulty (simple to complex). Participants read and judge the given sentences for whether they are meaningful or not. After that, they are asked to recall the numbers in serial order. (Number and sentence levels are randomised)	Accuracy score of sentence judgment component Accuracy score of the numbers of correct digit recalls RTs mean comparisons
Stroop	Participants are asked to report the printed colour of the words (Green, Red, Yellow, and Blue) and not the meanings of the words. Some words are displayed in an incongruent colour (e.g., the word RED displayed in yellow) while others correspond (e.g., the word RED displayed in red)	Accuracy in congruent and incongruent conditions RTs mean comparisons

3.7.2 Analysing Qualitative Data

To answer questions exploring learners' perceptions, thematic analysis was followed. Thematic analysis lent coherence to the explorative nature of this study that aimed to identify learner profiles of grit, buoyancy and self-efficacy and understand how learners' perceptions and experiences of academic persistence contribute to their profiles. Specifically, this approach often allows for thorough engagement with the data while acknowledging the interpretive role of the researcher. This is embodied in the use of term 'reflexive' to highlight the development and significance of the researcher's role in thematic analysis (Braun & Clarke, 2019, 2020, 2021).

Thematic analysis often involves identifying common themes and patterns within data. To conduct the analysis, I followed Braun and Clarke's (2006) six phases and criteria for conducting thematic analysis from data reduction to interpretation of the findings. These included familiarising oneself with the data through reading and re-reading the data while noticing initial ideas, identifying interesting features in the data and collating those relevant to each other, searching for themes through clustering relevant codes to form potential meaningful themes, reviewing the themes by understanding the relationships between themes and codes and the entire data set, defining and naming themes, and interpreting and reporting the findings.

Following Braun and Clarke's analytical procedures, the analysis of the interview data consisted of several iterative cycles to develop codes and search for potential themes. Prior to coding data, the interviews were transcribed, pseudonymised based on the clustering profiles and exported to MAXQDA 24.02. Semi-structured interviews were analysed first followed by stimulated recalls. In order to generate codes for both interviews, a dual coding approach of both deductive and inductive analysis was selected. Adopting a dual approach may offer a more comprehensive exploration of learners' subjective experiences in relation to grit, buoyancy and self-efficacy in EFL context (Souzandehfar & Ibrahim, 2023). The deductive analytical approach based on the study conceptual frameworks and the research questions was used as the first cycle. In deductive coding, predefined existing codes based on the study conceptual

frameworks and themes from relevant literature and informed by results from the pilot study were used in the analysis (Creswell & Poth, 2016; Saldaña, 2021). In conjunction with the deductive a priori analytical approach, emerging themes derived from the data were used. This hybrid approach to analyse data both deductively and inductively aligned well with the purpose and nature of the study to address the identified gaps in the literature that largely depended on quantitative designs (Datu & Yang, 2019; Datu et al., 2016). In addition, the combined approach of thematic analysis offers more rigour, particularly in the study of subjective experiences as it captures patterns driven by both data and theory (Xu & Zammit, 2020). The integration of inductive and deductive approaches aligned with the recommendations to employ a priori and open-ended analytical procedures in the study of L2 resilience (Csizér et al., 2024). The steps undertaken in the analysis of the two sets of interviews allowed for engaging repeatedly with the data to gain a deeper understanding of learners' perspectives of the impact of their resilience on L2 writing outcomes (Rad & Mirzaei, 2024).

As shown in Table 3-6, thematic analysis was conducted for the analysis of both semi-structured and stimulated recall interviews. An iterative process of coding was applied to the interview data to develop key categories. In particular, the study constructs and the research questions were used as general a priori codes to develop initial codebook. In the codebook, I delineated the initial codes, their definitions and connections to the study conceptual frameworks. Codes were assigned different colours to further organise the codes. The purpose was to easily refer to the constructed a priori codes while identifying relationships among the codes. This was also chosen to seek emerging codes that might emerge from the data. Key predetermined codes in relation to grit, and buoyancy literature included persistence, hard work, effort, adaptability, dealing with study stress, dealing with criticism and poor grades (Clark & Malecki, 2019; Datu et al., 2017a; Datu, Yuen, & Chen, 2018b; Duckworth et al., 2007; Tang et al., 2022). Concerning self-efficacy, existing codes were used, including confidence in competence and language, confidence in performance, confidence in metacognitive control, self-perception, and control beliefs (Martin & Marsh, 2003; Pajares, 2003; Teng et al., 2017).

Codes from the interview questions were synthesised informed by theories underpinning grit, buoyancy and self-efficacy and grouped into three categories as evident in students' responses:

- Perceptions about meanings and definitions
- Experiences of dealing with difficulties
- Self-confidence issues

Each interview was analysed and coded individually before comparing the cases jointly to collate and integrate codes. Accordingly, the final version of the coding framework was developed (Appendix D). To conduct the analysis, Braun and Clarke's six phases and criteria for good thematic analysis were followed. I also referred to the codebook and research questions in considering thematic patterns and potential themes. I followed these phases iteratively, enabling me to identify overarching themes that best describe the data. Table 3-6 provides a summary of these phases.

Table 3-6 Phases of Thematic Analysis

Phase	Description of the process
Phase 1: Familiarisation and getting to know the data	I checked the recordings and started the transcription to familiarise myself with the data and obtain a general understanding of the data in relation to the predefined codes derived from the interview questions and grit, buoyancy and self-efficacy literature. I read and r-read the transcripts several times to check for accuracy and immerse in the data. I kept a reflexive journal to reflect on my understanding, my role as a researcher and the utilised frameworks. I familiarised myself first with the Arabic versions before translating the transcripts and back translating them. Then, I used SYSTRAN translation software. I asked a friend who is proficient in Arabic and English to check the final versions.
Phase 2: Searching and generating initial codes.	Using the predetermined codes and the research questions, I highlighted the related excerpts. As I identified codes inductively and engaged with the data, I also collated codes that shared similar patterns to organise data according to the research questions. As such, codes that were connected were grouped together (e.g., dealing with setbacks, dealing with stress; adaptability, approaches to persistence). As I revisited and reflected on the data, I paid close attention to the data revealing interesting latent information about learners' profiles. In doing so, a hybrid coding was

	followed that involved generating codes through predefined and open coding methods.
Phase 3: Theme search and development	I continued collating similar codes while deleting the ones that were repeated or appeared irrelevant to the research questions and the overall aim. Recurrent and common patterns were developed into potential themes that capture the story of the data and reflect significant information about the research questions (Braun & Clarke, 2006; Maguire & Delahunt, 2017).
Phase 4: Theme refinement and review	To review relationships between codes and refine the constructed themes, I used a thematic map to visually examine how themes were linked.
Phase 5: Theme definition phase	As I continued reviewing the links and patterns in the data, I revised the names of the themes and sub-themes to represent the data clearly and concisely. I drew on the raw data, feedback from my supervisors, the theoretical frameworks and relevant literature to name and define the themes.
Phase 6: Interpretation and reporting	This stage represented the reporting of the findings in this chapter. As I write the findings, I continue refining the constructed themes to relate them to the research questions while discussing the analytical choices.

To understand whether the way in which learners actually deal with challenges during task performance (i.e., their behaviour) contributed to their buoyancy, stimulated recall interviews

were conducted. While the Cloze test was useful to observe how participants handled a challenging task, it was insufficient to unveil the underlying reasons behind participants' behaviour. One way to verify the obtained results and ensure they are consistent is through between-method triangulation (Bryman, 2004, 2006). To that end, stimulated recall interviews were conducted to possibly allow participants to articulate their thinking and reveal more information that may otherwise have not been depicted through Cloze tests alone. Likewise, although WM tasks are frequently used in the study of basic cognitive processes to highlight strengths and weaknesses in cognitive abilities, they may not be illustrative enough of how individuals think and make decisions at a given task or time. These measures, thus, may provide information about actual task performance but are unlikely to elucidate information relevant to the underlying reasons for the choices that participants made. In light of these issues, Gass and Mackey (2016) ascertain that as an introspective method, stimulated recalls can uncover learners' thinking during performance in a particular task whereby participants are prompted by a stimulus. In this study, segments from the Cloze test data were therefore used as stimuli to understand participants' thoughts and persistent effort when they were doing the test. The segments were based on the Cloze test feedback in terms of the accuracy of the provided answers and the content of the summary.

A similar hybrid coding approach was also applied for the analysis of the stimulated recall data. This was guided by the already developed codes and the results from the semi-structured interviews. The data were initially coded inductively using keywords in relation to the persistent effort of the cluster members during the test, their approaches to navigate challenges, and their confidence in their responses. The application of this coding scheme was also helpful in drawing associations between the predetermined keywords and emerging themes. Subsequently, thematic maps were used to conduct systematic comparisons across the two types of interviews for each participant. The cross-case analysis of cluster members helped to clarify relational links among key themes and contributed to a more comprehensive understanding of each member of the identified clusters.

All in all, this study uses retrospective verbal reporting procedures i.e., stimulated recalls rather than concurrent reporting, namely, think-aloud. This choice was based on concerns germane to the characteristics of the study's participants and the data collection timeframe. Firstly, the participants had limited language proficiency and mainly represented learners in their first year at university. Given this, learners may not fully reflect on their Cloze performance, potentially compromising the validity of the data. This implies that it would be unrealistic to ask participants to verbalise their thinking concurrently during task performance. In fact, for learners with low language proficiency levels, the intrusive nature of think-aloud procedures may interfere with their metacognition (Hosseinpour & Kazemi, 2022). This suggests that the concurrent reporting may pose additional challenges, affecting how participants verbalise their thoughts. In response to these pitfalls, a non-concurrent and retrospective reporting measure was chosen; the recalls were conducted in Arabic, and specific segments were used to prompt participants' reflections. Finally, think-aloud procedures were excluded due to the study time constraints since such procedures require providing training to participants (Gass & Mackey, 2016).

After discussing the rationale for using stimulated recall interviews, it is crucial to lay out the steps that were taken to address the limitations associated with this method. During the interview, the purpose of the study was reiterated. Similarly, the structure, procedures and purpose of the recalls were elaborated. Participants were encouraged to be honest by emphasising that there were no right or wrong answers; the scores of their Cloze would not count towards their overall writing course grade; scores would not be shared with their writing instructors. In addition, open-ended questions were used to possibly invite participants to explain their thoughts and avoid directing their responses. After the Cloze test, participants were invited to the stimulated recalls. A holistic scoring was used to ensure that participants are prompted close to the time they completed the close task. Participants who expressed their interest in the interviews were told that interviews would be conducted as soon as possible after the Cloze test. Three were conducted in person immediately after the test. Time slots for online

interviews were provided to the participants to choose from. Participants were reminded that they need to take the Cloze and send it to the researcher via email or Whatsapp chat at least an hour before the time they chose for the interview. This was done in an attempt to ensure that participants recall their thoughts accurately. While every effort was made to mitigate threats to recall data validity, it was not possible to pilot the recall protocol for two main reasons. Firstly, the methodological change from the early phase of the research design meant that the time for executing the research was more restricted than it was originally planned. That is, the time spent in developing and testing the eye tracking procedures could have been used to run pilot tests. As this was the case, it was difficult to perform pilot trials while ensuring that data collection of the different methods employed in the study was not disrupted. Another reason was the fact that recall interviews were particularly featured in this study to collect authentic and unique data open to all responses (Meier & Vogt, 2015). However, the lack of pilot testing for the stimulated recall protocol during the set-up of this study may have led to brief interviews. In addition, there were some instances where the researcher had to interrupt participants to remind them that they need to elaborate on their thoughts instead of providing feedback on the test. Despite these challenges, throughout the retrospection, the purpose and format of the interview were explained; participants were advised to share any thoughts that they may have had during their performance, highlighting that their thoughts could provide valuable insights. The stimuli were displayed throughout the interview to support participants' reflections. Interviews were translated into English and transcribed.

3.8 Methodological limitations: addressing issues of validity and reliability:

To ensure the quality of the research, this section discusses potential threats to the validity and reliability and the steps taken to address them. This includes a discussion of the methodological challenges surrounding the research design and measures. To achieve this, the concepts of validity and reliability are defined before the discussion of the ethical

considerations and the role of the researcher. While some methodological challenges have already been acknowledged throughout the discussion of the study context and procedures, this section highlights the main limitations relevant to the design and measures. Although ensuring research quality is key for conducting any research, how quality is judged is subject to debate (Davies & Dodd, 2002). The next section, thus, discusses steps taken to ensure the quality of this mixed-methods research.

3.8.1 Validity

Validity in mixed methods designs refers to the techniques that researchers adopt to address potential risks that can influence the accuracy of inferences generated from the integration of qualitative and quantitative data (Creswell & Clark, 2017). According to Creswell and Clark (2017) researchers ought to link the potential threats to the specific design that was adopted. Because this study aimed to collect data concurrently through a convergent parallel design with the intent to draw inferences through comparing qualitative and quantitative data, potential validity threats that are commonly associated with the convergent mixed methods design are considered. These threats include using different concepts during quantitative and qualitative data collection to address the same questions, having unequal sample sizes, and comparing results separately (Creswell & Clark, 2017). For the present study, the utilised measures aimed to address the same concepts. While the questionnaire was used to measure grit, buoyancy, and self-efficacy, the interviews provided information about how learners perceived and experienced these constructs in relation to their writing skill. In the same vein, the use of the Cloze test and the WM task was particularly valuable in providing information concerning individual differences during a task performance in relation to academic persistence and its relevant concepts, which in turn facilitated the understanding of the intricacies and complexities underlying the cognitive-affective dimension of academic persistence.

Moreover, the study adapted mostly instruments that have been previously tested and validated. To establish content validity, the questionnaire items and semi-structured interview

protocol were piloted with another sample recruited from the same target population. Although it was not possible to collect an equal sample size for the current study for the two data strands, a second cycle was conducted to obtain data that could possibly be compared. Different sources of data were collected and compared in order to enhance the internal validity of the data and the results (Bryman, 2006; Creswell & Clark, 2017; Zohrabi, 2013). Another approach for establishing accuracy that is commonly recommended in the mixed methods literature (Creswell & Clark, 2017; Teddlie & Tashakkori, 2009) is through reporting evidence that represents both convergence and divergence in results. Thus, the concurrent design of the present study dwells on comparing the results of the datasets jointly to identify confirming and disconfirming evidence. In addition, a detailed account of the procedures and measures in data collection was given to enhance the rigour of the drawn conclusions. This aligns well with the call to provide a rich discussion of the design, procedures and measures to ensure validity in mixed methods design (Ivankova, Creswell, & Stick, 2006). This was also done in an attempt to enhance the replicability of the study and improve the transparency and credibility of the study results. In this respect, Creswell and Clark (2017) highlight that thick descriptions can increase the credibility of the results. Although the small sample size may limit the generalisability of the results hence affecting the external validity, providing detailed descriptions to other researchers may enhance the transferability of the study.

While validity and reliability are commonly associated with assessing the quality of quantitative research, the rigour of qualitative research is often judged by criteria of trustworthiness such as credibility, transferability, dependability, and confirmability (Guba, 1981; Shenton, 2004).

Credibility refers to the accuracy of reporting findings that reflect accurately the meanings perceived by participants (Shenton, 2004), which will be enhanced through expert-checking (here the researcher's supervisors through sharing and discussing the coding schemes), inter-rater agreement, and member-checking with participants through asking them to verify the intended meanings during the interviews and sharing the interview transcripts with them.

Transferability is concerned with transferring the results to other contexts or settings (Guba,

1981), was enhanced through thick descriptions of the methodological decisions and the interpretations in subsequent chapters. Dependability is relevant to findings that are stable or consistent over time and when replicated (Korstjens & Moser, 2017), which was enhanced through keeping a research journal, reflecting on my thoughts and role. Confirmability refers to the interpretations and findings being derived from data and not influenced by the investigator's bias (Korstjens & Moser, 2017), which was achieved through audit trail that includes reflexive journal and descriptions of the steps taken to conduct this research. Essential, differences in assessing the rigour of qualitative and quantitative research stem from their fundamental disparities in epistemological and ontological perspectives. While some of these criteria correspond somewhat with the concept of internal validity in quantitative inquiry such as credibility or the concept of external validity such as transferability, others correspond roughly with the concept of reliability such as dependability (Rolfe, 2006). The latter is the topic of the discussion below.

3.8.2 Reliability

As discussed above concepts used to assess the quality of research are often defined according to the epistemological nature of inquiry. Generally, assessing reliability is more common in conducting quantitative research, involving large sample sizes compared to qualitative research that often involves a modest sample size. Reliability refers to the consistency and stability of results when methods are used again under the same conditions (Creswell, 2013). In other words, consistent measures yield the same scores when used again with the same group of individuals under the same conditions. Several actions were taken to establish reliability. These included triangulation and detailed descriptions and justifications of the methodological choices. Gray (2013) echoes the importance of triangulating data to increase reliability through either collecting data from multiple sources, utilising several methods (questionnaire, interviews, Cloze and WM tests in the present study) or using a variety of theoretical approaches (for this study both quantitative and qualitative approaches are used).

Moreover, for the quantitative component of this study and to reduce any measurement error or bias, measures with good levels of internal reliability were adapted. The reliability of the questionnaire scale items was analysed, using Cronbach's Alpha scores. In developing the Cloze test, the reading passages were taken from EFL academic writing reference books. Reliability measures were used to check the consistency of Cloze test scores. This was achieved through involving an inter-rater to score a sample of the tests, using the same scoring rubric. As for the WM task, the study used validated tasks and included Arabic instructions and practice trials. As for the qualitative component, the study acknowledged the researcher's position and used member-checking to reduce researcher's bias in the interpretation of the findings. Reliability in qualitative research is more relevant to establishing similar conclusions concerning the assigned codes also known as intercoder agreement (Creswell & Clark, 2017; Gray, 2013). Three extracts from the interview transcripts of three participants were randomly selected to examine the interrater agreement, using Cohen's Kappa. The interrater generated 19 codes for the three extracts which the researcher had coded with 42 codes. Out of the 42 codes, 31 of the researcher's codes were consistent with the interrater codes, comprising 73.81%, implying a moderate level of agreement between raters (McHugh, 2012).

3.8.3 Ethical considerations and the role of the researcher:

Addressing ethical considerations is equally important to ensuring research quality (Gray, 2013). Ensuring ethical practices means that researchers follow appropriate procedures when dealing with human subjects (Cohen, Manion, & Morrison, 2018). For this study, several considerations were taken into account in planning, executing and writing this research. Prior to the design of the research, the researcher completed a course in maintaining ethics in research. During the design, the University of Southampton's ethical clearance was obtained through Ethics and Research Governance Online (ERGO). Right before collecting the actual data and commencing fieldwork, a request for permission of access was sent to the examined setting. Ethical principles concerning obtaining participants' informed consent, ensuring confidentiality

and anonymity of the participating individuals were taken into considerations. Participants were made aware of what their participation in the study involved and received information sheets. They were informed about their right to withdraw their participation from the study at any time. Participants were made aware that their participation was voluntary and that they would not get any cash compensation; however, they were also informed that if they participated in all the research components, they would receive in the writing course a one bonus mark for their participation. In addition, it was made clear to participants that any identifying information for any participant and the name of the setting would not be revealed in subsequent dissemination of the results. Participating students were advised that no identifying personal information that could be traceable would be shared with their university or writing instructor and during the reporting of the results. Students were further informed that the researcher would request an access to their writing course final grades. All obtained data were securely stored as encrypted files. The researcher's contact information was provided to allow for questions, clarifications or comments beyond the limits of interviews and self-reports.

As discussed previously, I introduced myself as a PhD student to eliminate any potential authoritative role and possibly be perceived as an outsider. While I am professionally affiliated with the participation setting, I have not visited or had any contact with the university since I started my PhD in 2019. With this in mind, many changes to the university teaching personnel and policies happened during my absence. The setting itself moved to a new building in a different location and I did not have any knowledge about the participants and their level previously. I share the same first language and culture and I also did my bachelor's and master's degrees in one college out of the 38 colleges that the participating university has. This offered me a plausible opportunity of being an insider. Bringing this to the fore during the introduction of my research may have potentially contributed to participants' willingness to describe their experiences more than they would possibly have felt with introducing myself as a complete outsider from the university of Southampton. This was because a status of a complete outsider would not potentially allow for true understanding the studied setting (Taylor, Bogdan,

& DeVault, 2015). Therefore, my positionality as the researcher was shaped by both the fresh perspective after almost four years of absence and my experience in studying academic writing and then teaching it at the university, making it possible to bring both insider and outsider perspectives. To minimise any implicit bias relevant to my role, I keep a research journal. One way through which researchers can accurately represent a phenomenon and reduce their biases is through self-reflections on their insider/outsider positions (Berger, 2013).

3.9 Summary and conclusion:

This chapter has described in detail the methodology that guided the study in addressing the research questions. It began by highlighting the research questions and objectives together with an overview of the underlying rationale for situating the study within a pragmatic paradigm. Next, the study variables, setting and participants were defined. This research used a design that allowed for collecting and mixing qualitative and quantitative data. In particular, a mixed-methods design was utilised, using questionnaires, Cloze tests, WM tasks, and interviews. Two rounds of data collection were executed and described. To ensure the quality of the research, several steps were taken such as utilising well validated measures, triangulation and using member-checking. Methodological limitations and ethical considerations were acknowledged and discussed. Building on the methodological foundation laid out through this chapter, the analyses and discussions of the results will be presented in the following chapters.

Chapter 4 Results

4.1 Chapter Overview

The study aimed to investigate the links between learners' potential grit, buoyancy and self-efficacy profiles and their performance in writing and WM tasks. This was in line with the recommendations of Maaliw et al. (2022) and Aguerre et al. (2022) to follow a holistic approach that incorporates both cognitive and noncognitive learner dimensions and identifies learner archetypes. One way to achieve this and bolster the precision of predictive modelling techniques such as regression is through data grouping procedures such as cluster analysis (Maaliw et al., 2022). The study hypothesised that learners who demonstrated grit, buoyancy and self-efficacy would perform better in writing and have better WM functions. The findings of the interplay between psychological constructs, particularly grit, and cognitive abilities in working memory capacity and between grit and achievement outcomes, are mixed. While previous evidence suggested that grit can enhance working memory capacity based on the reported effects of WM and grit perseverance of effort component on performance in L2 writing complex tasks (Zhang & Zhang, 2023), no relationships were found between grit and WM capacity during performance in WM tasks that required cognitive control and attention switch (Aguerre et al., 2022). Despite the lack of connections between grit and enhanced WM capacity performance, Aguerre and colleagues highlighted that gritty individuals were characterised by a cognitive profile that entails more cautious control. Some studies have also examined the impact of cognition on academic buoyancy, focusing notably on cognitive and metacognitive strategies, (Khojasteh et al., 2022). However, the link between buoyancy and WM has yet to be established. To investigate learner profiles of grit, buoyancy, and self-efficacy grounded in their writing performance and WM capacities, a profile-based approach, using cluster analysis is utilised to answer the following research questions:

RQ1. What learner profiles can be identified based on learner characteristics of grit, buoyancy, and self-efficacy in relation to writing outcomes?

Hypothesis 1: Meaningful profiles exist in Saudi first-year female undergraduates based on student individual differences in terms of grit, buoyancy and self-efficacy in writing. The rationale behind this hypothesis was based on past research, suggesting that EFL learners exhibited distinct profiles of grit, buoyancy and self-efficacy. Previous research, for example, suggested that learners with high levels of grit displayed cautious control in WM performance (Aguerre et al., 2022); buoyant learners were found to have better writing achievement outcomes (Wang & Xu, 2023); EFL learners displaying writing self-efficacious profiles outperformed learners with low levels of writing self-efficacy (Chen, Zhang, & Chen, 2022).

RQ2. To what extent does learner performance in the writing course differ based on their profiles of grit, buoyancy and self-efficacy?

Hypothesis 2: There would be significant differences among the identified clusters in relation to their writing performance as measured by their global writing scores. Learners characterised with higher profiles of grit, buoyancy and self-efficacy would have higher writing scores.

RQ3. To what extent does learner performance in WM tasks differ based on their profiles of grit, buoyancy and self-efficacy?

Hypothesis 3: There would be significant differences among the identified clustered in relation to their performance in WM tasks as measured by reading span and Stroop tasks. Learners characterised with higher profiles of grit, buoyancy and self-efficacy would demonstrate better WM capacity and executive functions.

These questions intended to first identify learner profiles of grit, buoyancy and self-efficacy based on writing outcomes. This was determined through cluster analyses. The questions further focused on investigating differences among the identified clusters in terms of writing

performance and performance in WM tasks through comparing variability between the cluster mean scores.

4.2 Preliminary Analyses of Correlations and Predictions

As shown in the literature review, previous studies investigating grit, buoyancy and self-efficacy have largely looked at whether these variables predicted language achievement outcomes. To investigate which variables best predicted student' global writing scores, questionnaire data were exported from the Qualtrics platform into Excel before exporting it into SPSS. After data screening and review, identifying personal information was removed. The number of recorded responses was 72; five entries were removed due to incomplete responses and providing the same response to all items; seven were not included in the analysis because the data either could not be traced or compared across the other datasets. The questionnaire was comprised of three subscales, focusing on grit, buoyancy, and self-efficacy. The internal consistency of each sub-scale was assessed using Cronbach's alpha. The individual scale reliability coefficients were Grit ($\alpha = 0.85$), Buoyancy ($\alpha = 0.64$), Linguistic Self-efficacy ($\alpha = 0.88$), Self-regulatory efficacy ($\alpha = 0.80$), and Performance self-efficacy ($\alpha = 0.86$). The overall reliability of the questionnaire when all scales are combined was high ($\alpha = 0.94$). While the Cronbach's alpha for Buoyancy subscale may seem problematic compared to the other subscales and the traditional reliability threshold, the study utilized a Cloze measure as a parallel measure to investigate how learners navigate challenges. The result of low reliability was likely due to the small sample size $n=60$ and the limited number of the scale items, only four items. In considering the use of internal consistency estimates for reliability of scales, Van Griethuijsen et al. (2014) anticipated this threat by demonstrating that the number of scale items affects the alpha values, demonstrating that fewer items could result in low alpha below what they regarded as acceptable levels, which ranged from 0.60 to 0.70. Generally, an alpha value ≥ 0.60 is deemed acceptable in research investigating psychological wellbeing and coping (Raes, Pommier, Neff, & Van Gucht, 2011). Although excluding the last item in the scale could yield a

greater alpha coefficient of 0.70, it was decided to keep the item for two reasons. First, the relationships between each item and the total score of the scale were assessed by examining the item-total correlations. The item-total correlations for the academic buoyancy scale were between .30 and .63, aligning with the recommended value of $\geq .30$ (Field, 2013). In addition the unidimensionality of the ABS was supported among a relatively large sample of 345 Arab college students in Egypt and Oman even when the overall reliability remained moderate (Khalaf & Abulela, 2021). In their study, the latter reported a categorical omega score among the Omani samples of 0.67 compared to an omega coefficient of 0.70 for the present study. Therefore, the ABS reliability alpha of 0.64 is deemed acceptable and the relatively low score was possibly due to the limited number of items, low sample size, and limited variation in participants' answers.

Results of the frequency descriptive analysis for the independent variables are summarised in Table 4-2 to Table 4-6. In order to carry out the analysis, the variables were normalised based on averages. This was done to maintain consistency with how the original scales were utilised and to ensure that each variable contributes equally to the cluster analysis. Given that the primary objective was to characterise learners through assessing the distance of each cluster from its centroids, normalisation is likely to facilitate within group comparisons and capture differences in cluster memberships more accurately, reducing variations arising from differences in measurement scales. The mean values for each variable for the 60 sample and normality of data distribution were examined. Grit had an average of $M=3.81$ and $SD\ 0.66$; buoyancy had an average of $M=3.5$ and $SD\ 0.72$; linguistic self-efficacy (LSE) had an average of $M= 3.66$ and $SD\ 0.77$; self-regulatory efficacy (SRE) had an average of $M=3.68$ and $SD\ 0.68$; and writing performance self-efficacy (PS) had an average of $M=3.47$ and $SD\ 0.74$. The results of Shapiro-Wilk test of normality showed that all the variables exhibited p -values above 0.01, suggesting that the data in the population are normally distributed for grit ($p=.14$), buoyancy ($p=.42$), LSE ($p=.37$), PS ($p=.31$), and SRE ($p=.03$) (Table 4-1).

Table 4-1 Shapiro-Wilk Test for Normality

	Statistic	df	Sig.
Grit	.97	60	.14
Buoyancy	.98	60	.42
LSE	.98	60	.37
SRE	.95	60	.03
PS	.98	60	.31

Table 4-2 Frequency Analysis for Grit Variable

Grit	N		Frequency	Percent
I push myself to do my personal best in the writing course	60	Not at all like me	1	1.7%
		Not much like me	6	10%
		Somewhat like me	15	25%
		Mostly like me	19	31.7%
		Very much like me	19	31.7%

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I work toward my academic goals no matter how long they take to reach	60	Not at all like me	0	0%
		Not much like me	3	5%
		Somewhat like me	21	35%
		Mostly like me	21	35%
		Very much like me	15	25%
Even when I could do something more fun, I give the writing course my best effort	60	Not at all like me	5	8.3%
		Not much like me	11	18.3%
		Somewhat like me	24	40%
		Mostly like me	17	28.3%
		Very much like me	3	5%

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I complete any writing task no matter how difficult it is	60	Not at all like me	0	0%
		Not much like me	4	6.7%
		Somewhat like me	6	10%
		Mostly like me	19	31.7%
		Very much like me	31	51.7%
I am determined to give my best effort in the writing course	60	Not at all like me	0	0%
		Not much like me	5	8.3%
		Somewhat like me	15	25%
		Mostly like me	20	33.3%
		Very much like me	20	33.3%

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In the writing course, once I set a goal, I try to overcome any challenges that arise	60	Not at all like me	0	0%
		Not much like me	3	5%
		Somewhat like me	19	31.7%
		Mostly like me	18	30%
		Very much like me	20	33.3%
I am able to balance working hard in the writing course with my work in the other courses that I am taking	60	Not at all like me	1	1.7%
		Not much like me	7	11.7%
		Somewhat like me	21	35%
		Mostly like me	19	31.7%
		Very much like me	12	20%

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Even if I am struggling in the writing course, I keep trying my best	60	Not at all like me	0	0
		Not much like me	3	5%
		Somewhat like me	8	13.3%
		Mostly like me	24	40%
		Very much like me	25	41.7%

Table 4-3 Frequency Analysis for Buoyancy

Buoyancy	N		Frequency	Percent
I'm good at dealing with writing setbacks (e.g., bad marks, negative feedback on my writing assignments)	60	Not at all like me	1	1.7%
		Not much like me	9	15.0%
		Somewhat like me	21	35.0%
		Mostly like me	14	23.3%
		Very much like me	15	25.0%
I don't let stress about my writing get on top of me (e.g., stress about completing a writing task and deadline pressures)	60	Not at all like me	2	3.3%

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		Not much like me	11	18.3%
		Somewhat like me	20	33.3%
		Mostly like me	15	25.0%
		Very much like me	12	20.0%
I think I'm good at dealing with writing problems (e.g., problems relating to grammar, the use of wrong words, spelling mistakes, and punctuation marks).	60	Not at all like me	1	1.7%
		Not much like me	8	13.3%
		Somewhat like me	18	30.0%
		Mostly like me	21	35.0%
		Very much like me	12	20.0%
		Not at all like me	1	1.7%
I don't let a bad mark on my writing assignments or poor writing test score affect my confidence in my writing.	60			

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	Not much like me	7	11.7%
	Somewhat like me	23	38.3%
	Mostly like me	20	33.3%
	Very much like me	9	15.0%

Table 4-4 Frequency Analysis for Linguistic Self-efficacy (LSE)

Linguistic Self-efficacy	N		Frequency	Percent
		Not at all like mw	0	0%
I can correctly use parts of speech	60	Not much like me	8	13.3%
(e.g., nouns, verbs, adjectives) in		Somewhat like me	17	28.3%
writing		Mostly like me	21	35.0%
		Very much like me	14	23.3%
	60	Not at all like mw	0	0%

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I can write a simple sentence with a		Not much like me	0	0%
correct grammatical structure		Somewhat like me	11	18.3%
		Mostly like me	17	28.3%
		Very much like me	32	53.3%
I can write compound and complex	60	Not at all like me	1	1.7%
sentences with appropriate		Not much like me	15	25.0%
grammatical structures		Somewhat like me	21	35.0%
		Mostly like me	12	20.0%
		Very much like me	11	18.3%
I can write a composition with a	60	Not at all like me	1	1.7%
clear organisation or structure		Not much like me	9	15.0%
		Somewhat like me	24	40.0%
		Mostly like me	15	25.0%
		Very much like me	11	18.3%
I can revise wordy or confusing	60	Not at all like me	2	3.3%
sentences of my writing		Not much like me	9	15.0%

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I can revise my composition to make it better organized	60	Somewhat like me	22	36.7%
		Mostly like me	14	23.3%
		Very much like me	13	21.7%
		Not at all like me	1	1.7%
		Not much like me	7	11.7%
I can revise basic grammar errors in my writing	60	Somewhat like me	11	18.3%
		Mostly like me	22	36.7%
		Very much like me	19	31.7%
		Not at all like me	1	1.7%
		Not much like me	6	10.0%
		Somewhat like me	25	41.7%
		Mostly like me	13	21.7%
		Very much like me	15	25.0%

Table 4-5 Frequency Analysis for Self-Regulatory Efficacy (SRE)

Self-Regulatory Efficacy	N		Frequency	Percent
I can recognise my goal to improve my writing	60	Not at all like me	1	1.7%
		Not much like me	0	0%
		Somewhat like me	21	35.0%
		Mostly like me	25	41.7%
		Very much like me	13	21.7%
I can think of my goals before writing	60	Not at all like me	0	0%
		Not much like me	5	8.3%
		Somewhat like me	22	36.7%
		Mostly like me	19	31.7%
		Very much like me	14	23.3%
I can think of different ways to help me to plan before writing	60	Not at all like me	1	1.7%
		Not much like me	6	10.0%
		Somewhat like me	18	30.0%
		Mostly like me	20	33.3%

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I can evaluate whether I achieve my goal in writing	60	Very much like me	15	25.0%
		Not at all like me	0	0%
		Not much like me	12	20.0%
		Somewhat like me	24	40.0%
		Mostly like me	13	21.7%
I can evaluate my strength and weakness in writing	60	Very much like me	11	18.3%
		Not at all like me	0	0%
		Not much like me	3	5.0%
		Somewhat like me	17	28.3%
		Mostly like me	18	30.0%
I can evaluate whether a composition is good or bad	60	Very much like me	22	36.7%
		Not at all like me	0	0%
		Not much like me	10	16.7%
		Somewhat like me	22	36.7%
		Mostly like me	16	26.7%
		Very much like me	12	20.0%

Table 4-6 Frequency Analysis for Performance Self-efficacy (PSE)

Performance Self-efficacy	N		Frequency	Percent
I can understand the most difficult material presented in writing courses	60	Not at all like me	2	3.3%
		Not much like me	12	20.0%
		Somewhat like me	21	35.0%
		Mostly like me	14	23.3%
		Very much like me	11	18.3%
I can understand the basic concepts taught in writing courses	60	Not at all like me	1	1.7%
		Not much like me	2	3.3%
		Somewhat like me	17	28.3%
		Mostly like me	23	38.3%

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		Very much like me	17	28.3%
I can understand the most complex material presented by the instructor of writing courses	60	Not at all like me	4	6.7%
		Not much like me	21	35.0%
		Somewhat like me	15	25.0%
		Mostly like me	14	23.3%
		Very much like me	6	10.0%
I can do an excellent job on the assignments in writing courses	60	Not at all like me	1	1.7%
		Not much like me	5	8.3%
		Somewhat like me	24	40.0%
		Mostly like me	16	26.7%
		Very much like me	14	23.3%

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I can master the writing knowledge and strategies being taught in writing courses	60	Not at all like me	1	1.7%
		Not much like me	6	10.0%
		Somewhat like me	22	36.7%
		Mostly like me	21	35.0%
		Very much like me	10	16.7%
I can use the writing knowledge and strategies being taught in writing courses	60	Not at all like me	0	0%
		Not much like me	8	13.3%
		Somewhat like me	20	33.3%
		Mostly like me	19	31.7%
		Very much like me	13	21.7%

Chapter 4

Considering the difficulty of the writing course, the teacher, and my skill, I can	60	Not at all like me	0	0%
perform well in writing courses		Not much like me	11	18.3%
		Somewhat like me	25	41.7%
		Mostly like me	16	26.7%
		Very much like me	8	13.3%

Prior to exploring the possible numbers of clusters, initial correlation analysis was conducted among the latent variables. As shown in Table 4-7, there were significant positive correlations among all the predictor variables, with effect sizes ranging between .34 to .66, suggesting moderate to large correlations.

Table 4-7 Correlational Analysis: Grit, Buoyancy, and Self-efficacy.

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
Grit	3.80	.66	—				
Buoyancy	3.50	.75	.36**	—			
Linguistic Self-efficacy	3.63	.82	.44**	.43**	—		
Self-regulatory efficacy	3.66	.71	.43**	.38**	.54**	—	
Performance self-efficacy	3.46	.75	.51**	.34**	.66**	.60**	—

*. Correlation is significant at $p < .05$.

**. Correlation is significant at $p < .01$.

Furthermore, to test whether grit, self-efficacy and buoyancy predicted global writing scores, a multiple linear regression test was run. Multiple regression analysis measures the extent to which a number of predictors (i.e., grit, buoyancy, and self-efficacy) can account for the variance in a single dependent variable (i.e., students' global writing scores), and whether a change in students' global writing scores might be predicted from changes in students' grit, buoyancy, and self-efficacy beliefs (Hair, Black, Babin, & Anderson, 2019). The outcome variable for regression analysis was the global writing scores whereas the predictor variables were grit, buoyancy and self-efficacy. Prior to conducting the analysis, the assumptions

underlying regression were tested for each predictor, including normality of residuals, linearity, equality of variances i.e., homoscedasticity, independence of the errors, and little or absence of multicollinearity (Hair et al., 2019). The assumption of normality was assessed by inspecting skewness and kurtosis values which suggested sufficient normal distribution of the scores. To understand the unique impact for each variable, multicollinearity assumption was assessed by examining the tolerance values of predictor variables. The values were greater than 0.1, suggesting no evidence of multicollinearity (Hair et al., 2019). It was hypothesised that higher grit, buoyancy and self-efficacy levels would account for high writing scores. All the predictor variables were entered collectively in the regression model. The results of the analysis of multiple linear regression at 95% confidence intervals showed a good model fit: $F(5,54)=4.62$, $p < 0.001$, with R^2 for the overall model was 0.30 with an adjusted R^2 of 0.235, indicating that approximately 23.5 % of the variance in students' global writing scores was explained by the predictor variables. Table 4-8 provides a summary of the regression coefficients and standard errors. Clearly, grit, buoyancy, and self-efficacy collectively contributed to learners' global writing scores. By looking at the unique individual contributions of the predictor variables, the results indicated that only grit positively predicted writing scores ($\beta=0.50$, $t=3.63$, $p < 0.001$)—grit was the only best predictor of writing, suggesting that a one unit increase in grit level would contribute to an increase in global writing scores. Based on the prediction model, there was evidence of effects of the predictors on writing scores. Therefore, the null hypothesis that asserts no effects of grit, buoyancy and self-efficacy levels on changes in writing scores was partially rejected.

Table 4-8 Multiple regression results for global writing scores

Model	SE		β	R^2	Adj R^2
	B	B			
(Constant)	-8.367	1.980		.300	.235***
Grit	1.855	.511	.500***		

Buoyancy	.458	.446	.134
LSE	.063	.513	.020
SRE	.186	.541	.051
PS	-.327	.561	-.099

Note. *LSE*=Linguistic Self-efficacy, *SRE*= Self-regulatory Efficacy, *PS*= Performance Self-efficacy, Model= “enter” method in SPSS Statistics; *B*= unstandardised regression coefficient; *SE B*= standard error of the coefficient; β = standardised coefficient; R^2 = coefficient of determination; *Adj R*²= adjusted R^2 .

a. * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

4.3 Results by Research Questions

4.3.1 Research Question 1. What learner profiles can be identified based on learner characteristics of grit, buoyancy, and self-efficacy in relation to writing?

To answer this question and after the construction of a global writing score, responses to the self-report were used as the clustering variables. The aim was to examine the existing groups of learners based on grit, buoyancy and self-efficacy scores and compare the differences based on their global writing scores. The question employed data collected from the self-report questionnaire. It first explored learner potential profiles of grit, buoyancy and self-efficacy. Then it tested the hypothesis that L2 learners might perform differently in writing and WM tasks according to their grit, buoyancy and self-efficacy profiles. It was hypothesised that learners with greater levels of grit, buoyancy and self-efficacy in L2 writing would have better writing scores.

The variables included for the cluster analysis were grit, buoyancy, linguistic self-efficacy, self-regulatory efficacy, and performance self-efficacy. Hierarchical cluster analysing was performed to explore the potential numbers of learner grit, buoyancy and self-efficacy profiles. To explore the possible underlying clusters in the data, each variable was entered separately

(i.e., grit, followed by buoyancy and then self-efficacy) then later all the variables were collectively inspected. This was followed to visually examine how each variable contributed to the cluster structure. The visual examination of the dendrograms produced via Ward's hierarchical structuring method suggested three potential cut-off points where clusters could be formed, each with distance scores greater than 5 (to). This underlying structure suggests that the resulting clusters fused at these cut-off points were distinct from each other.

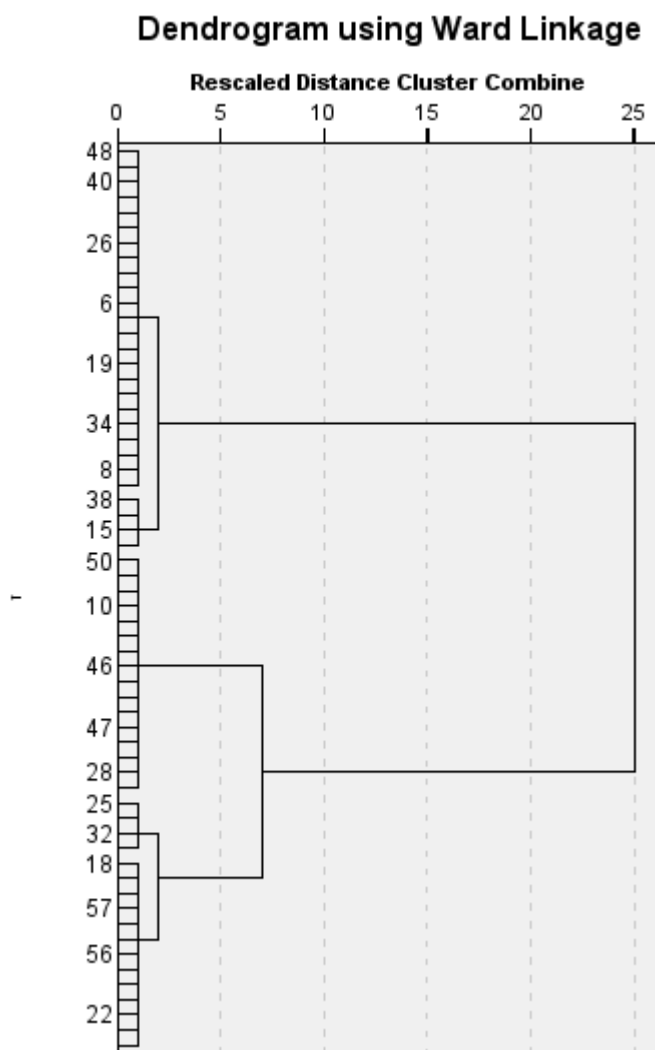


Figure 4-1 Dendrogram for Hierarchical Cluster Analysis of Grit Variable

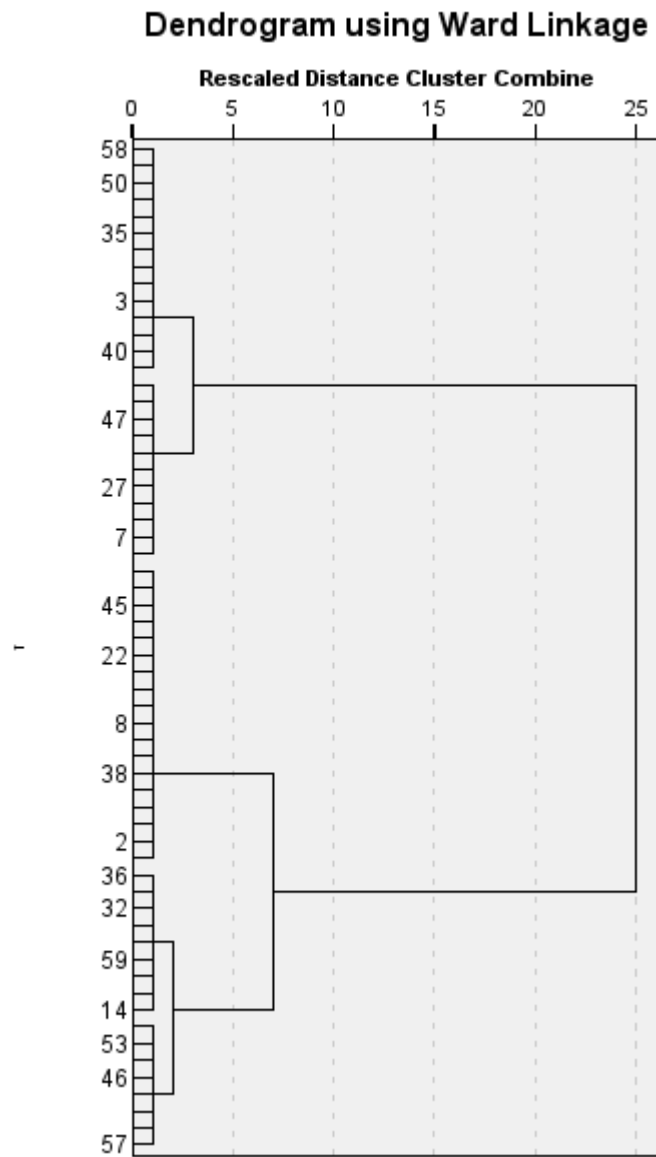


Figure 4-2 Dendrogram for Hierarchical Cluster Analysis of Buoyancy Variable

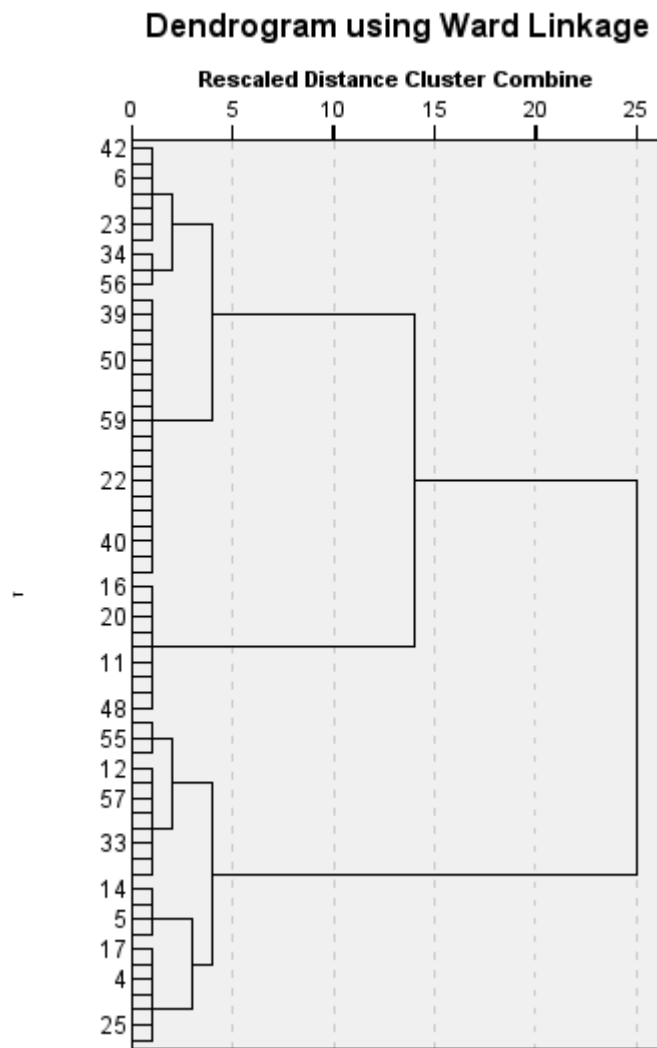


Figure 4-3 Dendrogram for Hierarchical Cluster Analysis of Self-efficacy Variables

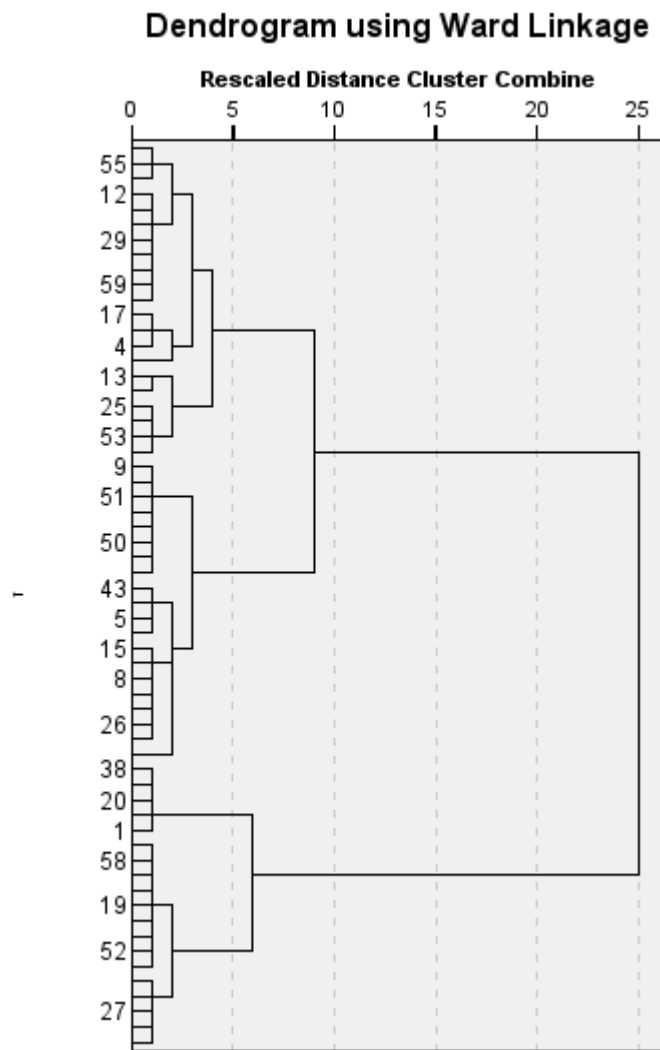


Figure 4-4 Dendrogram for Hierarchical Cluster Analysis of grit, buoyancy, and self-efficacy

The results of the hierarchical analysis implied the potential for creating three and four cluster solutions. These possible clusters were grouped based on differences between them with regard to their writing outcomes. While the three-cluster solution revealed differences among group cases based on examining each variable separately, the three- and four-cluster solution captured dissimilarities across all variables collectively. To further test the optimal number of clusters, the elbow method was used. In this method, the distance between fusion coefficients when the last two clusters merged as one is compared against the number of clusters; the sharp decline or elbow serves as the cutoff point for determining the possible number of clusters, suggesting adding new clusters will not introduce new information or variance (Plonsky, 2015). The graph in Figure 4-5 indicates that a three-cluster solution is appropriate. This is consistent with existing literature that has proposed different cluster levels, ranging from two to five with the three-cluster solution appearing predominant. The graph also shows a small decline by cluster 4. As such and to gain a deeper understanding of the optimal number of clusters, two different clustering models were considered: three-level and four-level solutions. Using K-means, the value of K was predefined as three and four, respectively. After that, a series of ANOVA tests were conducted for each cluster level to find differences in writing scores among learner profiles of grit, buoyancy, and self-efficacy and whether learners with different grit, buoyancy and self-efficacy profiles have different scores in regard to their WM capacity and executive functions.

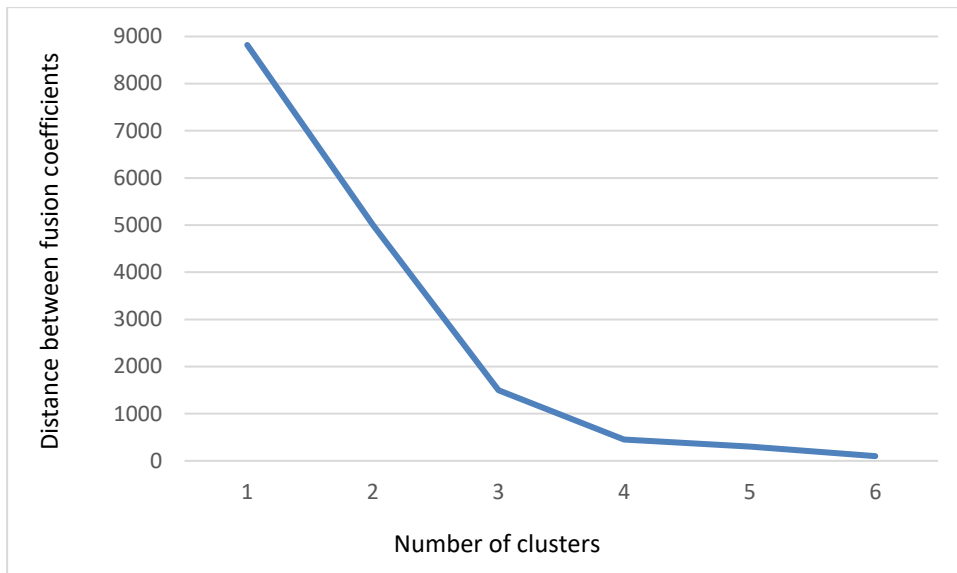


Figure 4-5 Distance between fusion coefficients across number of clusters

4.3.1.1 Identifying learner grit, buoyancy and self-efficacy profiles at three-level cluster, using K-means:

Identifying learner profiles of grit, buoyancy and self-efficacy is deemed necessary to the understanding of individual differences in writing and WM. The hierarchical cluster results provided information about the initial cluster centroids. Informed by the results, three and four level solutions can possibly reveal unknown patterns in learner levels of grit, buoyancy and self-efficacy. To further confirm the number of clusters and identify if learners show distinct patterns of grit, buoyancy and self-efficacy and whether these patterns correlate with differences in their writing and WM performance, K-means cluster analysis was used. Using K-means algorithm involves predefining the number of clusters in order to partition clusters according to their centroids, assigning clusters to the closest centroids, measuring the distance of new cluster centroids iteratively until iterations converge, whereby the cluster centroids do not change positions between iterations (Jain, 2010). The numbers of K were predefined as three and four, capturing more meaningful patterns compared to two and five clustering levels. While two and five structures were examined, the results did not clearly demarcate distinct patterns among clusters, limiting the interpretations of the clustering results. The cluster means and standard deviations for each variable were examined for the three-cluster solution (Table 4-9). The results

showed three distinct groups of learners labelled, High, Moderate, and Low, based on their L2 writing outcomes. Cluster 1 (Low) comprised 20 students characterised by low scores of grit, buoyancy and self-efficacy with mean scores 2.99 for grit, $M=2.84$ for buoyancy and close to 3.0 for and self-efficacy, hence was labelled Low. Cluster 2 (High) has 16 students, demonstrating high levels of grit and buoyancy and self-efficacy, labelled as High. Cluster 3 consisted of 24 learners, exhibiting high grit but moderate scores across all other variables, labelled as High grit, Moderate buoyancy and self-efficacy (Figure 4-6).

Table 4-9 Learner Grit, Buoyancy, Self-efficacy Cluster Profiles at Three-level Solution

	Sample M(SD) <i>N</i> =60	Cluster 1 M(SD) <i>N</i> =20	Cluster 2 M(SD) <i>N</i> =16	Cluster 3 M(SD) <i>N</i> =24
		<i>Low</i>	High	High in grit Moderate buoyancy, self- efficacy
Variables				
Grit	3.81(0.65)	2.99(0.57)	4.25(0.50)	4.03(0.40)
Buoyancy	3.52(0.73)	2.84(0.50)	3.99(0.71)	3.52(0.41)
LSE	3.66(0.77)	3.0(0.43)	4.58(0.33)	3.60(0.56)
SRE	3.68(0.68)	3.01(0.58)	4.45(0.44)	3.47(0.43)
PS	3.47(0.74)	2.89(0.52)	4.28(0.59)	3.42(0.45)

Note. LSE= linguistic self-efficacy, SRE= self-regulatory efficacy, PS performance self-efficacy.

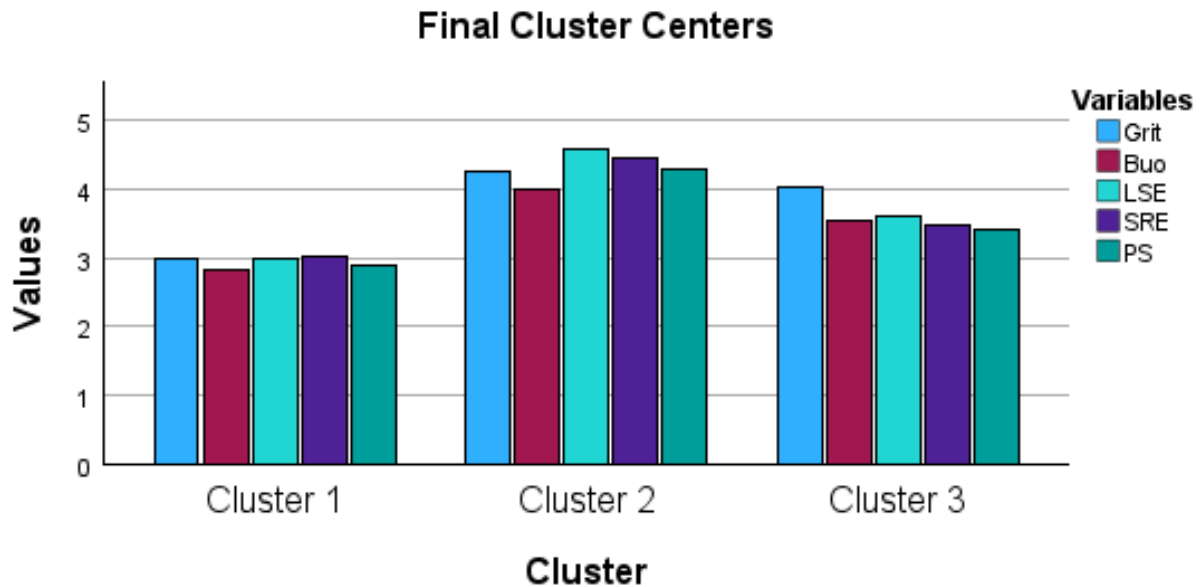


Figure 4-6 Three-level Cluster of Learner Grit, Buoyancy and Self-efficacy Profiles

4.3.1.2 Identifying learner profiles at four-level cluster, using K-means:

The three-cluster solution is helpful to interpret distinct learner profiles easily. A four-cluster solution was further carried out (Table 4-10). The K-means results identified four clusters with more nuanced profiles. Specifically, the four-clustering structure appears to illuminate intricacies of self-efficacy across members of the identified clusters. While the results of the regression analysis revealed self-efficacy, buoyancy and grit collectively contributed to students' writing scores, there was an obvious divergence in the regression coefficients for self-efficacy. Performance self-efficacy specifically had a negative regression coefficient compared to other efficacy predictors, suggesting that the higher students' performance efficacy, the lower their global writing scores. Given that this negative relationship appeared only for performance efficacy, two assumptions could be made. First, self-efficacy alone may not contribute to learner writing performance. Second, learners limited English proficiency may affect the trajectory of their self-efficacy beliefs. Based on the findings of the multiple

regression, the four-structure cluster was preferred. In the four-cluster solution, Cluster 1 comprised 8 students characterised by high grit $M=4.25$, and low buoyancy $M=3.11$ and self-efficacy with mean close to 3.0. Cluster 2 had 12 students with high levels across all variables with a mean score above 4. Cluster 3 consisted of 24 learners, exhibiting high grit and linguistic self-efficacy with a mean score close to 4.0, but relatively moderate levels of buoyancy, self-regulatory and performance efficacy beliefs. Cluster 4 had 16 students, demonstrating low mean scores across all variables (Figure 4-7). The four cluster revealed distinct groups of learners labelled, *Cluster 1* Gritty strivers but help-seekers and self-doubters (i.e., *High in grit, low in buoyancy and self-efficacy*), *Cluster 2* Writing strivers, problem navigators and efficacy masters (i.e., *High across all variables*), *Cluster 3* Strivers and language masters but mediocre self-believers and stress managers (i.e., *High in grit and linguistic self-efficacy, moderate in buoyancy and self-regulatory and performance efficacy*), and *Cluster 4* Writing strugglers and efficacy stragglers (i.e., *Low across all variables*) (Table 4-10). When comparing the four-cluster solution to the three-cluster solution, it became evident that learner profiles exhibited notable similarities. However, the four-cluster solution highlighted nuances in learners' self-efficacy that were not captured in the three-cluster analysis.

Table 4-10 Grit, Buoyancy, Self-efficacy Cluster Profiles at Four-level Solution

	Sample M(SD)	Cluster 1 M(SD)	Cluster 2 M(SD)	Cluster 3 M(SD)	Cluster 4 M(SD)
	$N=60$	$N=8$	$N=12$	$N=24$	$N=16$
		High grit, Low buoyancy & self- efficacy	High	High grit, LSE, moderate buoyancy, SRE, PS	Low
Variables					
Grit	3.81(0.65)	4.25(0.28)	4.40(0.42)	3.93(0.44)	2.96(0.41)
Buoyancy	3.52(0.73)	3.11(0.63)	4.04(0.82)	3.57(0.42)	2.91(0.52)

LSE	3.66(0.77)	2.82(0.55)	4.61(0.25)	3.89(0.35)	3.00(0.45)
SRE	3.68(0.68)	3.05(0.50)	4.62(0.37)	3.55(0.52)	3.02(0.59)
PS	3.47(0.74)	2.91(0.46)	4.47(0.42)	3.57(0.39)	2.84(0.54)

Note. LSE= linguistic self-efficacy, SRE= self-regulatory efficacy, PS performance self-efficacy.

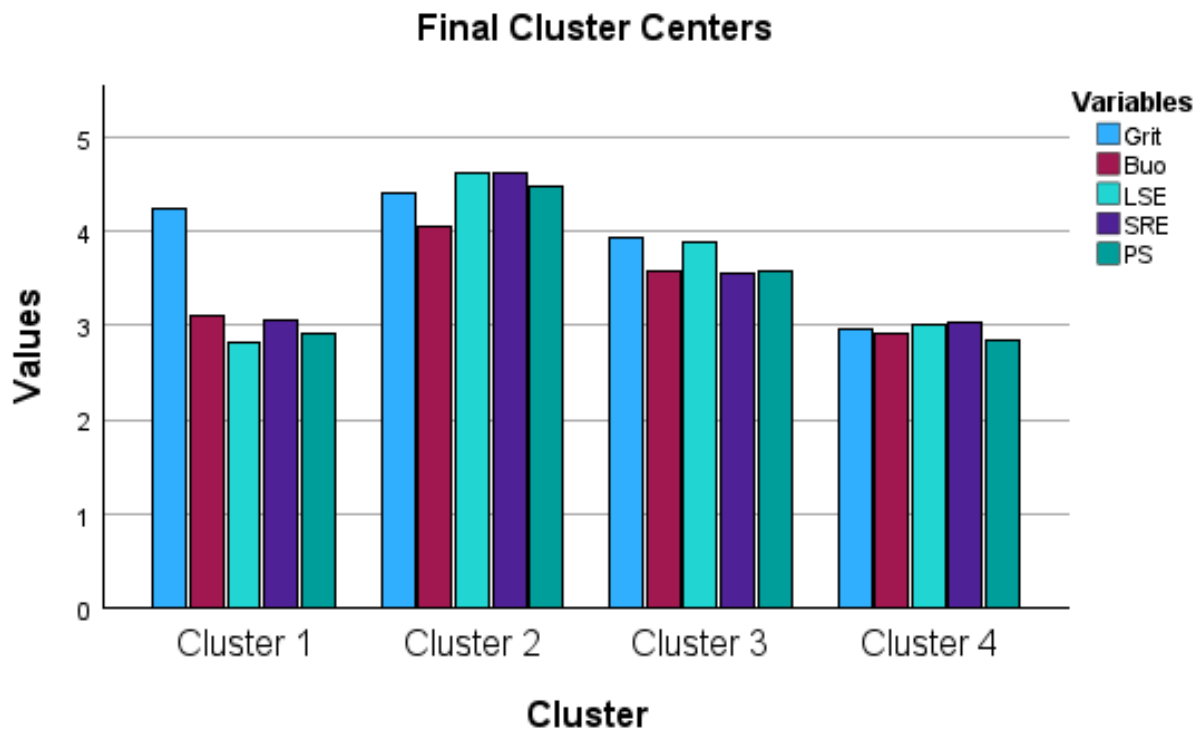


Figure 4-7 Student Cluster Profiles at Four-level Clustering Solution

The results from both hierarchical and k-means analyses supported the hypothesis that in writing, learners can be categorised into unique profiles based on their mean scores of grit, buoyancy and self-efficacy. The results of cluster analysis uncovered unknown individual patterns in Saudi female undergraduates' levels of grit, buoyancy, and self-efficacy in writing. In particular, the three-cluster solution detected three groups: group one demonstrated lower levels of grit, buoyancy and self-efficacy in terms of their writing skill; group two was characterised by high mean scores across all variables; group three exhibited high levels of grit and moderate levels of buoyancy and self-efficacy. Compared to these clusters, the four-cluster solution revealed Gritty strivers but help-seekers and self-doubters, Writing strivers, problem navigators and efficacy masters, Strivers and language masters but mediocre self-believers and stress managers, *and* Writing strugglers and efficacy stragglers.

4.3.2 Research Question 2. To what extent does learner global writing scores differ based on their profiles of grit, buoyancy and self-efficacy?

The aim of this question was to examine if there are differences in writing performance based on learner identified profiles. It was set to unmask whether learners with different grit, buoyancy and self-efficacy profiles have different global writing scores. The study hypothesised that there would be significant differences among the identified clusters in relation to their writing performance as measured by their writing scores. Previous research on grit and writing achievement among ESL college students has recognised the significant role of grit, especially perseverance of effort component, on L2 writing achievement (Zhang, 2023; Zhang & Zhang, 2023). The findings of these studies suggest that grit, particularly perseverance of effort, can enhance L2 writing performance. Similarly, EFL learners exhibiting higher levels of buoyancy had higher writing proficiency scores (Wang & Xu, 2023). Prior research has also established the

significant effect of self-efficacy on writing performance, especially among EFL population (Sabti et al., 2019; Sun et al., 2021).

To further examine the relationship between the identified profiles and writing performance, a one-way between subjects analysis of variance (ANOVA) was performed. Analysis of variance tests are commonly used to understand and compare the differences in mean scores between two or more groups (Field, 2013; Woodrow, 2014). Specifically, the identified clusters both at three and four level solutions were compared independently on a global writing score. In this manner, two one-way ANOVAs were run with each cluster membership solution as the independent variable and the global writing scores as the dependent variable. The ANOVA assumptions were addressed by examining Levene's test of homogeneity of variance with $p > 0.05$. Further, variables were standardised to facilitate meaningful interpretations. The results of the ANOVA analyses revealed a significant difference between clustering groups both at three cluster structures $F(2,57)=7.96$ $p < .001$ and four cluster level $F(3,56)=8.77$ $p < .001$ on writing global scores of Saudi first-year female undergraduates. The ANOVA results of the three-cluster solution showed that buoyancy followed by grit were the variables on which learners differ the least $F(2,57)=23.61$ $p < .001$, $F(2,57)=24.01$ $p < .001$ whereas self-efficacy variables contributed with the most distinctions among the participants: linguistic self-efficacy $F(2,57)=50.40$ $p < .001$, performance self-efficacy $F(2,57)=32.97$ $p < .001$, and self-regulatory efficacy $F(2,57)=27.87$ $p < .001$, respectively (Table 4-11).

Table 4-11 ANOVA summary of the independent variables & their impact on writing scores

		Sum of				
		Squares	df	Mean Square	F	Sig.
Grit	Between Groups	11.769	2	5.88	24.01	<.001
	Within Groups	13.96	57	.24		
Buoyancy	Between Groups	13.79	2	6.89	23.61	<.001
	Within Groups	16.64	57	.29		

LSE	Between Groups	22.63	2	11.31	50.40	<.001
	Within Groups	12.79	57	.22		
SRE	Between Groups	13.44	2	6.72	27.87	<.001
	Within Groups	13.74	57	.241		
PS	Between Groups	17.54	2	8.77	32.97	<.001
	Within Groups	15.16	57	.26		

A Scheffe post-hoc analysis was also performed to examine which clusters differ significantly from each other. Scheffe procedure is chosen over other post hoc tests such as Tukey and Bonferroni because it facilitates comparisons across groups with different sample sizes (Ruxton & Beauchamp, 2008). For the three-cluster solution, the results of the post-hoc test showed significant differences between the clusters with cluster 1 having the lowest mean score whereas cluster 2 has the highest mean score. The post-hoc comparison also indicates significant mean differences between Cluster 1 (*Low*) ($n=20$, $M= -1.45$, $SD= 2.59$) and both Cluster 2 (*High*) ($n=16$, $M=1.34$, $SD=1.57$, $p < .002$) and Cluster 3 (*High grit, Moderate buoyancy and self-efficacy*) ($n=24$, $M= 0.55$, $SD=2.21$, $p=.016$). The mean writing scores for students in the Low cluster i.e., cluster 1 were statistically significantly lower than cluster 2 and 3 based on their profiles of grit, buoyancy and self-efficacy. However, there was no statistical significant differences in the scores of cluster 2 (*High*) and cluster 3 (*High grit, Moderate buoyancy and self-efficacy*) $p= 0.54$. The results suggest that students who had lower profiles of grit, buoyancy and self-efficacy had lower writing scores compared to students with higher and more moderate profiles. The results further revealed that the mean writing scores for participants in the High cluster i.e., cluster 2 was significantly higher than the mean writing scores of those in the moderate cluster i.e., cluster 3. These findings further imply that there are significant differences in writing scores across the clusters, supporting the hypothesis that learners can be grouped into distinct profiles based on their writing abilities. The effect size estimates $\eta^2=.22$

further indicate a moderate to large effect of cluster number on writing global scores (Table 4-12).

Table 4-12 ANOVA summary results for writing scores variance by three-level solution

Writing Scores	Sum of Squares	Df	Mean Square	F	Sig.	η^2
Between Groups	77.497	2	38.748	7.958	<.001	.22
Within Groups	277.542	57	4.869			
Total	355.038	59				

For the four cluster solution, the ANOVA results revealed a significant difference between the clustering groups $F(3,56)=8.77$ $p < .001$ on writing global scores of Saudi first-year female undergraduates. The results further showed that buoyancy followed by self-regulatory efficacy were the variables on which learners differed the least $F(3,56)=12.05$ $p < .001$, $F(3,56)=14.39$ $p < .001$ while variables including linguistic self-efficacy $F(3,56)=52.31$ $p < .001$, performance efficacy $F(3,56)=33.03$ $p < .001$, and grit $F(3,56)=31.98$ $p < .001$ contributed with the most distinctions among the participants (Table 4-13). The ANOVA results showed that the Writing strivers, problem navigators and efficacy masters cluster (*i.e., High across all variables*) had the highest global writing mean score $M=2.06$, $SD=1.73$ whereas the Writing strugglers and efficacy stragglers (*i.e., Low across all variables*) had the lowest global writing mean score $M=-1.831$, $SD=2.41$. In comparison, the Gritty strivers but help-seekers and self-doubters (*i.e., High in grit, low in buoyancy and self-efficacy*), had a mean score of $M=1.01$, $SD=1.67$ and the Strivers and language masters but mediocre self-believers and stress managers (*i.e., High in grit and linguistic self-efficacy, moderate in buoyancy and self-regulatory and performance efficacy*) mean score was .412 with $SD=2.0$.

Table 4-13 ANOVA summary of the independent variables & their impact on writing scores

		Sum of				
		Squares	df	Mean Square	F	Sig.
Grit	Between Groups	16.249	3	5.416	31.980	<.001
	Within Groups	9.485	56	.169		
	Total	25.734	59			
Buoyancy	Between Groups	11.937	3	3.979	12.045	<.001
	Within Groups	18.500	56	.330		
	Total	30.436	59			
LSE	Between Groups	26.110	3	8.703	52.309	<.001
	Within Groups	9.317	56	.166		
	Total	35.427	59			
SRE	Between Groups	11.832	3	3.944	14.387	<.001
	Within Groups	15.351	56	.274		
	Total	27.183	59			
PS	Between Groups	20.897	3	6.966	33.032	<.001
	Within Groups	11.809	56	.211		
	Total	32.706	59			
Writing global score	Between Groups	113.504	3	37.835	8.772	<.001
	Within Groups	241.534	56	4.313		
	Total	355.038	59			

The post-hoc test showed significant mean differences among the clusters. Significant mean differences were found between the Writing strugglers and efficacy stragglers (*i.e., Low across all variables*) and all the other clusters. In particular, significant differences were found between the Gritty strivers but help-seekers and self-doubters (*i.e., High in grit, low in buoyancy and self-efficacy*) $n=8$, $M=1.01$, $SD=1.67$) and the Writing strugglers and efficacy stragglers (*i.e., Low across all variables*) ($n=16$, $M=-1.831$, $SD=2.4$, $p < .009$), between the Writing strivers, problem

navigators and efficacy masters (*i.e., High across all variables*) ($n=12$, $M= 2.06$, $SD=1.73$) and the Writing strugglers and efficacy stragglers (*i.e., Low across all variables*) ($n=16$, $M=-1.831$, $SD=2.4$, $p <.001$), and the Strivers and language masters but mediocre self-believers and stress managers (*i.e., High in grit and linguistic self-efficacy, moderate in buoyancy and self-regulatory and performance efficacy*) ($n=24$, $M=.412$ with $SD= 2.0$) and the Writing strugglers and efficacy stragglers (*i.e., Low across all variables*) ($n=16$, $M=-1.831$, $SD=2.4$, $p <.014$). The effect size was $\eta^2=.33$, indicating a moderate to large effect of the impact of cluster differences on writing global scores (Table 4-14). In contrast, no significant differences were found between the Gritty strivers but help-seekers and self-doubters (*i.e., High in grit, low in buoyancy and self-efficacy*) and the Writing strivers, problem navigators and efficacy masters (*i.e., High across all variables*) $p=.73$ nor between the Gritty strivers but help-seekers and self-doubters (*i.e., High in grit, low in buoyancy and self-efficacy*) and the Strivers and language masters but mediocre self-believers and stress managers (*i.e., High in grit and linguistic self-efficacy, moderate in buoyancy and self-regulatory and performance efficacy*) $p=.89$. No differences were also found between the Writing strivers, problem navigators and efficacy masters (*i.e., High across all variables*), and the Strivers and language masters but mediocre self-believers and stress managers (*i.e., High in grit and linguistic self-efficacy, moderate in buoyancy and self-regulatory and performance efficacy*) $p=.27$. The significant differences in mean scores of the cluster that exhibited lower profiles of grit, buoyancy and self-efficacy *i.e., the Writing strugglers and efficacy stragglers* supported the hypothesis that learners performed differently in writing based on the identified clusters. The null hypothesis that there is no significant difference in writing scores based on learner clustering profiles of grit, buoyancy and self-efficacy was rejected.

Table 4-14 ANOVA summary results for writing scores variance by four-level solution

Writing Scores	Sum of Squares	Df	Mean Square	F	Sig.	η^2
Between Groups	113.504	3	37.835	8.772	<.001	.33
Within Groups	241.534	56	4.313			
Total	355.038	59				

4.3.3 Research Question 3. To what extent does learner performance in WM tasks differ based on their profiles of grit, buoyancy and self-efficacy?

This question was posed to study whether there are differences in WM functions based on learner identified profiles. The aim was to uncover whether learners with different grit, buoyancy and self-efficacy profiles have different WM functions as measured by their performance in verbal digit span and Stroop tasks. The study hypothesises that learner profiles of grit, buoyancy and self-efficacy may contribute to better WM capacity and attention. Specifically, there would be significant differences among the identified clusters in relation to their WM. While some past research has identified a relationship between grit and WM executive functions in relation to writing performance (Liao & Chen, 2022; Zhang & Zhang, 2023), and between self-efficacy and performance in cognitively challenging tasks (Autin & Croizet, 2012; Hoffman & Schraw, 2009), few studies reported that grit did not contribute to enhanced performance in WM (Aguerre et al., 2022). Although the findings of links between enhanced cognitive capacity and grit were inconsistent in the literature, the findings of Aguerre et al. (2022), solidified that gritty individuals performed differently by exhibiting a more cautious profile of control despite the lack of clear connections. If this is the case, then clustering techniques based on learners shared characteristics of grit, buoyancy and self-efficacy would very likely offer a more comprehensive understanding of learner distinct profiles concerning cognitive-affective dimension of academic persistence constructs. The clustering approach in the study of cognitive abilities allows for discerning patterns in the studied learners rather than in the variables (Rysiewicz, 2008). It is

possible that individuals characterised with high profiles of grit, buoyancy and self-efficacy would be better in dealing with distractors and interfering information compared to those with low profiles of thereof. Two working memory tasks were utilised to test this, namely the reading span and Stroop tasks. These were administered simultaneously and in a cross-sectional manner.

To analyse WM data, descriptive analysis was performed first to understand general trends in the data. Both accuracy scores and reaction times (RTs) were examined. For the reading span task, accuracy of correctly recalled numbers range between (1-6) for the two-digit trials, (1-9) in the three-digit trials and (1-12) for the four-digit trials. The accuracy scores for correctly judging the veracity of the sentences (distractors) ranged between (4-9). The processing times were measured in milliseconds (ms) and ranged between 7101 to 5031 ms, approximately 7.2 seconds to 50.4 seconds, with an average score of 27.40 ($SD= 11.10$). Overall, for the span task, the maximum number of correctly recalled digits (i.e., storage component) was 24 out of 27 and the minimum was 6, indicating that participants showed a wide range of working memory capacities. Higher recall/storage scores indicated better WM capacity, whereas lower scores suggested limited working memory. Furthermore, the maximum accuracy score for correctly judging the veracity of sentences (i.e., the distractors/ the processing component) was 9 out of 9, while the minimum processing score was 4. As for the Stroop task, the maximum score was 12 out of 12 and the minimum was 1. Reaction times in congruent conditions varied from 2334.90 to 79930.09 ms with a mean RT of 10631.56, whereas RTs in incongruent conditions ranged between 5904.29 to 242751.10 with a mean RT of 22133.94. The results suggested that for the noncongruent conditions, participants responded slower than in congruent trials.

On average for the entire sample in this study, students had approximately a mean score of 18.82 ($SD=5.18$) in relation to the correctly recalled digits, regardless of the memory load level (i.e., recall at two-level, three-level, or four-level digits); when considering the accuracy score as an aggregated score based on the sum of correct recalls, the results indicated that the mean score was 18.82 and approximately over 40 % out of the 60 participants had correct recalls

across all trial levels (Table 4-15). To align with previous research in the area of complex WM span tasks that involve two components and personality traits (e.g., Aguerre et. al., 2022; Waris et. al., 2018), a working memory index was created through a composite score of the standardised values (z-scores) of both the storage component (correctly recalled digits) and the processing component (correctly judged sentences). The standardised values were used to detect potential outliers in the data, whereby any extreme values significantly exceeding or falling below three standard deviations from the mean would be considered as an outlier (Cooksey, 2020; Kilgore et al., 2023). No outliers were found.

Table 4-15 Descriptive results of WM variables for the entire sample before standardisation

Variables	<i>N</i>	<i>M</i> (<i>SD</i>)	Min	Max	Skewness	Kurtosis
Two-digit level	60	5.37(1.07)	1	6	-2.067	4.736
Three-digit level	60	6.27(2.08)	1	9	-.613	-.023
Four-digit level	60	7.18(3.14)	1	12	-.195	-1.014
Number of correct Recalls (all digit levels combined)	60	18.82(5.18)	6	24	-0.49	-0.29
Accuracy Score (sentence judgments)	60	7.90(1.29)	4	9	-1.15	0.65
WM span Processing time (ms)	60	27400.24 (11105.16)	7101.39	50313.19	0.47	-0.73
Stroop Congruent	60	2.50(0.85)	0	3	-1.69	-1.99
Stroop Incongruent	60	5.93(2.95)	0	9	-0.76	-0.74
RTs congruent (ms)	60	10631.56 (12623.15)	2334.90	79930.09	3.88	17.294

RTs incongruent (ms)	60	22133.94 (19736.56)	5904.29	242751.10	4.15	23.54
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Prior to examining between clusters differences concerning WM capacity and attention in relation to participants' profiles of grit, buoyancy and self-efficacy, all variables were standardised, using z-scores. This was performed due to the use of different measurement scales, ensuring that all variables can be compared on the same scale. In Table 4-16, the descriptive results for the clusters at three-level solution show Cluster 1 low in grit, buoyancy and self-efficacy exhibited the lowest mean score in WM accuracy span index ($M=-0.084$, $SD = 0.88$), while Cluster 2 characterised with high levels of grit, buoyancy and self-efficacy had the highest mean score ($M=0.14$, $SD = 1.83$). However, the results of the span processing time indicated that Cluster 1 (Low) had the lowest mean ($M=-0.296$, $SD = 0.76$) compared to the other High clusters, indicating while the low cluster responded quickly, they still may not have processed information correctly given their low accuracy scores.

Nonetheless, the three clusters demonstrated comparable means in the Stroop task. For the congruent conditions, Cluster 1 (Low) had the lowest mean score ($M=-.219$, $SD= 1.02$), whereas Cluster 3 (High grit, Moderate buoyancy and self-efficacy) had the highest mean score ($M=0.11$, $SD=0.96$). Similar results were also found in noncongruent trials with Cluster 3 (High grit, Moderate buoyancy and self-efficacy) having the highest mean score ($M=.090$, $SD=0.99$). However, for RTs in congruent trials, Cluster 3 High grit, Moderate buoyancy and self-efficacy) displayed the lowest means ($M=-.245$, $SD=0.41$) while Clusters 1(Low) had the highest RT mean score ($M=.257$, $SD=1.46$). For the noncongruent conditions, Cluster 2 (High) demonstrated the lowest RT mean score ($M=-0.108$, $SD= 0.61$) while the low cluster (Clusters 1) had the highest RT mean ($M=.279$, $SD=1.66$). The high Stroop accuracy mean scores together with low RTs for learners in both cluster 2 and 3 with profiles of high and moderate grit, buoyancy and self-

efficacy suggest that learners in these High clusters were more better at processing and inhibiting interfering information compared to cluster 1 that displayed lower Stroop mean accuracy scores and higher RT mean scores.

Table 4-16 WM Descriptive results for the Three-cluster Solution

		N	M(SD)	Min	Max
WM Span Index	Cluster 1	20	-.084(0.88)	-2.300	1.402
	Cluster 2	16	.14(1.83)	-1.958	1.743
	Cluster 3	24	-.024(1.06)	-1.939	1.743
Processing Time	Cluster 1	20	-.296(0.76)	-1.367	1.515
	Cluster 2	16	.421(1.22)	-1.310	2.063
	Cluster 3	24	-.033(0.95)	-1.827	1.502
Stroop Congruent	Cluster 1	20	-.219(1.02)	-2.928	.585
	Cluster 2	16	.048(1.03)	-2.928	.585
	Cluster 3	24	.11(0.96)	-2.928	.585
Stroop Noncongruent	Cluster 1	20	-.14(1.05)	-2.010	1.039
	Cluster 2	16	.022(0.99)	-2.010	1.039
	Cluster 3	24	.090(0.99)	-2.010	1.039
Congruent RTs	Cluster 1	20	.257(1.46)	-.585	5.489
	Cluster 2	16	.032(0.96)	-.653	3.326
	Cluster 3	24	-.245(0.41)	-.657	1.154
Noncongruent RTs	Cluster 1	20	.279(1.66)	-.676	6.111
	Cluster 2	16	-.108(0.61)	-.822	1.687
	Cluster 3	24	-.093(0.61)	-.797	1.420

To address the question of whether learners with different grit, buoyancy and self-efficacy cluster profiles perform differently in regard to WM tasks, a one-way between subjects ANOVA

was performed. Specifically, the identified clusters both at three and four level solutions were compared independently on WM index, Stroop conditions and RTs. In this manner, the identified cluster solutions were identified as the within subjects factors and WM index, Stroop conditions together with RTS as the dependent variables. Contrary to the prediction of significant mean differences, the results of the ANOVA test demonstrated no significant differences between the cluster mean scores at the three cluster structure on the WM span index $F(2, 57) = 0.23, p = 0.79$). Likewise, there were no statistical significance in span processing time between the clusters $F(2, 57) = 2.43, p = 0.10$). For the Stroop task, there were no significant differences between the cluster means in congruent conditions $F(2, 57) = 0.54, p = 0.58$). Similarly, no significant differences in the group means in noncongruent trials $F(2, 57) = 0.25, p = 0.77$). Moreover, reaction times for both congruent and incongruent conditions did not yield significant mean differences $F(2, 57) = 1.15, p = 0.32$ and $F(2, 57) = 0.85, p = 0.43$, respectively (Table 4-17). The results suggest no statistical significance differences at the three- structure in means were found among the High, Low and Moderate clusters in regard to WM capacity as measured by the WM index and the processing time as well as attention measured by Stroop conditions and RTs. The comparisons of each cluster mean in Scheffe post-hoc test showed no significant mean differences between the clusters across all WM tasks, implying that the clusters were similar in their WM performance. The results suggest that participant profiles of grit, buoyancy and self-efficacy were less likely to contribute to differences in their WM functions.

Table 4-17 ANOVA summary results for variance in WM by three-level solution

		Sum of		Mean		
		Squares	df	Square	F	Sig.
WM span index	Between	.479	2	.240	.233	.793
	Groups					
	Within	58.521	57	1.027		
	Groups					

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	Total	59.000	59			
Stroop congruent condition	Between	1.103	2	.552	.543	.584
	Groups					
	Within	57.897	57	1.016		
	Groups					
	Total	59.000	59			
Stroop noncongruent condition	Between	.521	2	.260	.254	.777
	Groups					
	Within	58.479	57	1.026		
	Groups					
	Total	59.000	59			
WM span processing time	Between	4.632	2	2.316	2.428	.107
	Groups					
	Within	54.368	57	.954		
	Groups					
	Total	59.000	59			
Congruent RTs	Between	2.286	2	1.143	1.149	.324
	Groups					
	Within	56.714	57	.995		
	Groups					
	Total	59.000	59			
Noncongruent RTs	Between	1.711	2	.855	.851	.432
	Groups					
	Within	57.289	57	1.005		
	Groups					
	Total	59.000	59			

Similar results were further confirmed by the four-level cluster structure. The Writing strugglers and efficacy strugglers that was characterised by low grit, buoyancy and self-efficacy had the lowest mean score ($M=-0.10$, $SD=0.92$) in the WM index whereas the Strivers and language masters but mediocre self-believers and stress managers (i.e., *High in grit and linguistic self-efficacy, moderate in buoyancy and self-regulatory and performance efficacy*) had the highest mean score ($M=0.11$, $SD=1.03$). In terms of span processing time, the Writing strugglers and efficacy strugglers (i.e., *Low across all variables*) had the fastest RT mean ($M=-0.33$, $SD=0.76$) compared to the Gritty strivers but help-seekers and self-doubters (i.e., *High grit, low buoyancy and self-efficacy*) that exhibited the slowest RT mean ($M=0.24$, $SD=1.0$). This may suggest that learners with High grit profiles while demonstrating higher accuracy scores in span task, their processing speed was low compared to members of the Writing strugglers and efficacy strugglers. For Stroop congruent conditions, the Gritty strivers but help-seekers and self-doubters (i.e., *High in grit, low in buoyancy and self-efficacy*) had the lowest mean ($M=-0.32$, $SD=1.28$), and the Writing strugglers and efficacy strugglers (i.e., *Low across all variables*) had the highest ($M=0.13$, $SD=0.99$). In contrast, for Stroop noncongruent scores, the Strivers and language masters but mediocre self-believers and stress managers (i.e., *High in grit and linguistic self-efficacy, moderate in buoyancy and self-regulatory and performance efficacy*) had the highest mean ($M=.13$, $SD=.90$), and the Writing strivers, problem navigators and efficacy masters (i.e., *High across all variables*), had the lowest ($M=-0.35$, $SD=1.00$). For processing speed in these trials, the RTs of the Writing strugglers and efficacy strugglers (i.e., *Low across all variables*) was the lowest mean for congruent ($M=-0.24$, $SD= 0.44$), indicating faster RT, while the Strivers and language masters but mediocre self-believers and stress managers (i.e., *High in grit and linguistic self-efficacy, moderate in buoyancy and self-regulatory and performance efficacy*) had the slowest RT ($M=-0.29$, $SD= 1.54$). In the noncongruent trials, the Writing strivers, problem navigators and efficacy masters (i.e., *High across all variables*) had the fastest RTs ($M=-0.10$, $SD=0.35$) whereas the Strivers and language masters but mediocre self-believers

and stress managers (i.e., *High in grit and linguistic self-efficacy, moderate in buoyancy and self-regulatory and performance efficacy*) had the slowest RT means ($M=0.135$, $SD=1.48$) (Table 4-18).

Table 4-18 WM Descriptive results for the Four-cluster Solution

		N	M(SD)
WM Span Index	Cluster 1	8	-.044(1.08)
	Cluster 2	12	-.019(1.09)
	Cluster 3	24	.11(1.03)
	Cluster 4	16	-.10(.92)
Processing Time	Cluster 1	8	.246(1.10)
	Cluster 2	12	.223(.72)
	Cluster 3	24	.057(1.18)
	Cluster 4	16	-.333(.76)
Stroop Congruent	Cluster 1	8	.05(.80)
	Cluster 2	12	-.32(1.28)
	Cluster 3	24	.00(1.00)
	Cluster 4	16	.13(.99)
Stroop Noncongruent	Cluster 1	8	-.008(1.18)
	Cluster 2	12	-.353(1.00)
	Cluster 3	24	.130(.90)
	Cluster 4	16	.022(1.02)
Congruent RTs	Cluster 1	8	-.056(.50)
	Cluster 2	12	-.160(.106)
	Cluster 3	24	.293(1.54)
	Cluster 4	16	-.243(.44)
Noncongruent RTs	Cluster 1	8	-.054(.68)

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Cluster 2	12	-.103(.35)
Cluster 3	24	.135(1.48)
Cluster 4	16	-.081(.61)

The ANOVA results in Table 4-19 showed no significant differences between clusters for WM capacity and attention. This suggests that contrary to the initial hypothesis, individuals with different profiles of grit, buoyancy, and self-efficacy did not manifest distinct differences in WM capacity and executive functions. While the ANOVA results were inconsistent with the research hypothesis, the descriptive data suggested potential variation that might further be investigated with a larger sample size.

Table 4-19 ANOVA summary results for variance in WM by four-level solution

		Sum of		Mean		
		Squares	df	Square	F	Sig.
WM span index	Between	.513	3	.171	.164	.920
	Groups					
	Within	58.487	56	1.044		
	Groups					
	Total	59.000	59			
Stroop congruent condition	Between	1.289	3	.430	.417	.742
	Groups					
	Within	57.711	56	1.031		
	Groups					
	Total	59.000	59			
Stroop noncongruent condition	Between	1.512	3	.504	.491	.690
	Groups					
	Within	57.488	56	1.027		
	Groups					
	Total	59.000	59			

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WM span processing time	Between	3.190	3	1.063	1.067	.370
	Groups					
	Within	55.810	56	.997		
	Groups					
	Total	59.000	59			
Congruent RTs	Between	3.227	3	1.076	1.080	.365
	Groups					
	Within	55.773	56	.996		
	Groups					
	Total	59.000	59			
Noncongruent RTs	Between	.654	3	.218	.209	.890
	Groups					
	Within	58.346	56	1.042		
	Groups					
	Total	59.000	59			

Chapter Summary:

This chapter provided the results of the quantitative component of the research. Three research questions guided the analysis of the results. The results of testing the effect of grit, buoyancy and self-efficacy on students' global writing scores showed that grit, buoyancy and self-efficacy collectively contributed to students' writing scores; grit independently was a significant predictor of writing scores after controlling for the other variables. After testing the predictive power of the variables, a cluster analysis was used to further study whether grit, buoyancy and self-efficacy profiles existed in relation to writing within a sample of first-year Saudi female undergraduates. The three-cluster solution identified three main profiles within the studied population: High, Low, and High in grit but Moderate in buoyancy and self-efficacy. The four-cluster solution revealed a more nuanced distinction across the profiles; hence it was preferred. The second question examined the significant differences in the identified profiles in regard to their global writing scores. Significant differences were found between the High and Low clusters in writing scores at three and four cluster levels. The third and final question tested whether significant differences could be found among the clusters in terms of WM capacity and executive functions. The research hypothesised significant differences would exist among the clusters based on WM performance. The reverse was found as the results showed no significant differences among the clusters in relation to WM performance both at three and four clustering levels. Overall, the chapter provided answers to the research questions and tested the hypothesis of differences among the identified clusters based on writing achievement outcomes and performance in WM tasks. The results will be further discussed in the discussion chapter. The next chapter presents the qualitative findings for the interview data to explore how learners in the identified clusters understand and experience grit and buoyancy, while also exploring their confidence in their writing.

Chapter 5 Qualitative Results

5.1 Chapter Overview

In the previous chapter, distinct learner profiles of grit, buoyancy and self-efficacy were identified both at three- and four- clustering levels. In particular, the four-clustering structure revealed subtle differences among cluster members. The four identified profiles were: writing Strivers, Problem-navigators and Efficacy Masters (*i.e., high across all variables*), Writing Strugglers and Efficacy Stragglers (*low across all variables*), Strivers and Language Masters but Mediocre Self-believers and Stress Managers, (*high in grit and linguistic self-efficacy, moderate in buoyancy and self-regulatory and performance efficacy*), Gritty Strivers but Help-seekers and Self-doubters, (*high in grit, low in buoyancy and self-efficacy*). In addition, significant mean differences were found between the low and high clusters at both three and four cluster levels in relation to writing global scores with the low clusters statistically significantly lower than the high clusters. Yet, no significant differences were found among the clusters in terms of working memory capacity and executive functions. To understand this further and complement the quantitative results, qualitative data uncovering grit, buoyancy and self-efficacy and writing achievement outcomes at a task level became important. Qualitative data were gathered from learners in the identified clusters at four-level structure via semi- and stimulated recall interviews and discussed in this chapter.

Literature explicitly concerned with advancing the understanding of persistence constructs, especially grit and its conceptual correlates affirmed the cognitive-affective structure underlying grit (Armstrong et al., 2018; Schimschal et al., 2021). Therefore, learners' insights

from interview data may better illustrate this complex structure compared to evidence that capitalises upon quantitative methods alone. This chapter, thus, presents the unique experiences of the cluster members to better understand the impact of members' characteristics of grit, buoyancy and self-efficacy on their writing performance. Specifically, this chapter explores how the identified clusters understand the constructs under investigation and further unearths participants' experiences of grit, buoyancy and self-efficacy in relation to their writing performance. To understand the cognitive-affective dimension underlying academic persistence and its related constructs, the chapter first presents results from learners' general reflections in the semi-structured interviews followed by a discussion of members' reflections when stimulated by a shared test experience. The chapter concludes with a discussion that integrates the quantitative and qualitative results. To understand the characteristics of the identified clusters better and align with the mixed methods approach used in this study, the following question was posed:

Research Question 4.

What roles do students' profiles of grit, buoyancy and self-efficacy play in shaping students' persistence in writing based on how members of the identified profiles:

- a) perceive academic persistence;
- b) experience academic persistence;
- c) identify the role of their confidence?

This broad question aimed to understand the dimensions of persistence as viewed by Saudi female first-year university students, explore participants perceived experiences of academic persistence in terms of their behaviour in dealing with setbacks, and capture how self-efficacy beliefs relate to participants' persistence behaviour. From an interpretivist lens, this question uncovers how participants make sense of the investigated constructs to understand the intricacies in the identified clusters while addressing the identifiable gaps in the literature. Table 5-1 described the profiles of the ten students who participated in the interviews.

Table 5-1 Interview Participant Profiles

Pseudonym	Cluster Membership	Cluster profile label
Wesam	2	Writing strivers, problem navigators and efficacy masters. (High across all variables).
Farah	2	
Rema	4	Writing strugglers and efficacy stragglers. (Low across all variables)
Ruby	4	
Leen	3	Strivers and language masters but mediocre self-believers and stress managers. (High in grit and linguistic self-efficacy, moderate in buoyancy and self-regulatory and performance efficacy).
Heba	3	
Reem	3	
Amal	3	
Jood	1	Gritty strivers but help-seekers and self-doubters. (High in grit, low in buoyancy and self-efficacy)
Fajyr	1	

5.2 Qualitative Results by Interview Type:

5.2.1 Analysing Semi-structured Interviews

The analysis of the semi-structured interview data consisted of various cycles outlined in the Methodology Chapter. To analyse interview data, deductive coding based on the study conceptual frameworks and the research questions was used. In addition to the deductive a priori coding approach, emerging themes derived from the data were used. In so doing, a hybrid approach to analyse data both deductively and inductively was chosen. This hybrid approach aligned well with the purpose and nature of the study to address the identified gaps in the literature that largely depended on quantitative designs. In addition, the combined approach of thematic analysis offers more rigour, particularly in the study of subjective experiences as it captures patterns driven by both data and theory (Xu & Zammit, 2020). These codes were synthesised and grouped into three categories as evident in students' responses (See Chapter 3, Section 3.7.2):

- Perceptions about meanings and definitions
- Experiences of dealing with difficulties
- Self-confidence issues

Thematic Analysis (TA) was used to identify patterns in the data based on Braun and Clarke's (2006) six phases and criteria for conducting thematic analysis from data reduction to interpretation of the findings (Chapter 3, Table 3-6). Three main themes that captured the essence of cluster members' perceptions of academic persistence and their persistence experiences were identified and described in the following sections. Throughout the discussions, illustrative excerpts from members in each of the four identified clusters were also provided.

5.2.1.1 Theme 1: ‘Always try’, ‘strive to develop’, and ‘do what is required’: the perceived meaning of academic persistence.

The semi-structured interviews were conducted with ten participants. This theme was derived from participants’ perceptions of academic persistence. Whilst the wordings of grit and buoyancy were not directly used during the interviews, the phrase academic persistence was purposefully employed to encourage participants to reflect openly on their experiences of ‘bouncing back’ from writing challenges at varying degrees. This was intended to understand learners’ bouncing back’ experiences transparently rather than dichotomously. It might entirely be possible for members of the clusters to misunderstand these concepts as opposites had the two concepts been used explicitly during the interviews. Moreover, participants were overtly asked about persistence since the structure of grit and buoyancy is often a contentious issue in the literature as the two frameworks often operate within a conceptually relevant ground relating to persistence (Luthans et al., 2019). Therefore, investigating grit and buoyancy within the lens of academic persistence was deemed appropriate. The interviews also included follow-up questions to indirectly disclose persistence in relation to grit and buoyancy following the distal and proximal frameworks to understanding the effects of grit on academic performance through self-efficacy and buoyancy (Luthans et al., 2019). The study further involved multiple measures to understand disparities among members of the identified clusters in terms of writing performance, their general persistent experiences and experiences tied specifically to a shared writing task.

The first part of the fourth research question therefore focuses on participants’ perceptions of persistence in writing in order to understand what persistence in L2 writing means to Saudi female first-year EFL university students. Participants highlighted determination, effort, commitment and adherence to requirements, trying and overcoming challenges as dimensions of persistence in writing (Figure 5-1). Prespecified codes including effort, determination, hard work, and dealing with setbacks were used. Other codes were also derived from the data, including commitment, adherence, compliance, trying and striving for improvement. Words

such as ‘try’, ‘develop’, and ‘improve’ were frequently manifested in participants’ answers when asked to define academic persistence in writing.

The meaning of writing persistence

I define it as always being ready and trying my best in writing. (Jood)

readiness

It means that I always try, meaning I make an effort even if I face difficulties. I try as much as I can. (Ruby)

making effort

For me, it means to keep working on what you have to do even if you don't fully understand it or seems challenging, you need to try to understand and find different ways to finish it. (Amal)

determination overcoming difficulties

Persistence may mean that a person makes a continuous effort in writing and is always eager to improve themselves. (Fajyr)

continuous skill development

It might mean that in writing, one works on their writing skills by trying to improve their writing and make an effort to write. (Leen)

working hard

Perseverance means relying on yourself to make continuous effort and strive to develop writing through reading and practice. (Heba)

self-reliance

Well, I see it as doing what I'm supposed to do and not putting it off to the last minute. (Wesam)

I understand it as being committed to what is required of me in writing and continuing until I get it done. (Reem) **commitment and adherence**

My definition of writing perseverance is that I make constant effort in writing by developing my skill. It also means that I identify my weaknesses and try to work on them through continuous perseverance and development. (Farah) **identification of weakness**

For me, I see perseverance as trying to write even if I face a difficulty. I try to overcome it in any way, meaning that difficulties don't stop me; I try to solve them and persist in my writing so I always aspire to do my best and get good grades. (Rema)

aspiring and achieving good grades persistence

Figure 5-1 Map for the ‘perceived meaning of academic persistence’ and subordinate themes.

Participants described persistence in writing in relation to continuous effort to achieve long term goals such as skill development and good grades, which was consistent with the definition of grit in the literature, regardless of its structure as a singular (Clark & Malecki, 2019; Tang et al., 2022), dual (Duckworth et al., 2007; Sudina & Plonsky, 2021; Teimouri et al., 2020) or triadic (Datu et al., 2018b) concept. This was vividly voiced by Fajyr, Farah, Heba, and Rema (pseudonyms and each case displayed a different profile of the studied constructs), for example, who commented:

Persistence may mean that a person makes a continuous effort in writing and is always eager to improve themselves.

(Fajyr, *Gritty Striver but Help-seeker and Self-doubter Profile, Cluster 1*)

Perseverance means relying on yourself to make continuous effort and strive to develop writing through reading and practice.

(Heba, *Striver and Language Master but Mediocre Self-believer Profile, Cluster 3*)

For me, I see perseverance as trying to write even if I face a difficulty. I try to overcome it in any way, meaning that difficulties don't stop me; I try to solve them and persist in my writing, so I always aspire to do my best and get good grades. (Rema, *Writing Struggler and Efficacy Straggler Profile, Cluster 4*)

My definition of writing perseverance is that I make constant effort in writing by developing my skill. It also means that I identify my weaknesses and try to work on them through continuous perseverance and development. (Farah, *Writing Striver, Problem-navigator and Efficacy Master Profile, Cluster 2*)

In the above extracts, both Fajyr (cluster 1) and Heba (cluster 3) seemed to view effort and skill development as dimensions of academic persistence. Farah (cluster 2) aligned with this and appeared to perceive self-awareness through identifying weaknesses as another dimension. Rema (cluster 4) highlighted effort while focusing on mastery and achieving good grades. Considering this, I interpreted persistence as a multifaceted concept, encompassing features identified as character strengths by positive psychologist such as perseverance to completing tasks in spite of challenges (Peterson, 2006), alongside recognising areas of limitations and deficiencies to achieve goals relevant to performance and mastery. This seems consistent with the three-dimensional conception of grit, especially the dimensions of perseverance of effort and adaptability to situations. According to this model, adaptability is viewed as being open to change, having a desire for development, and maintaining relationships with others (Datu et al., 2018b; Datu et al., 2016). The thoughts that the participants expressed demonstrated that students understood academic persistence in writing under perseverance of effort and

adaptability dimensions while also asserting skill development, and awareness of personal weaknesses as key components.

An interesting point was also shared by Wesam and Reem whose profiles of grit, buoyancy and self-efficacy were dissimilar as they reflected that compliance with requirements and adherence as markers of persistence. They stated the following:

Well, I see it [persistence] as doing what I'm supposed to do and not putting it off to the last minute. (Wesam, *Writing Striver, Problem-navigator and Efficacy Master Profile, Cluster 2*)

I understand it as being committed to what is required of me in writing and continuing until I get it done. (Reem, *Striver and Language Master but Mediocre Self-believer Profile, Cluster 3*)

Wesam's and Reem's beliefs seem to be underpinned by cultural and religious beliefs. This resonates well with the findings that Saudi English learners typically conform to conventional writing standards, influenced by religious and cultural conformity (Shukri, 2014). While the triadic model of grit realised adaptability in collectivist settings in relation to openness to changes, desire for development, flexibility of plans and maintaining relationships, the perceptions of Wesam and Reem imply conformity to requirements as a possible element of persistence in the Saudi context. Furthermore, the conformity to requirements may implicitly suggest a desire for social acceptance and validation by others as asserted in Wesam's and Reem's choices of words such as 'I am supposed to do' and 'required of me'. Taken together, conformity to requirements and a desire for validation by others identified uniquely in this study as elements of grit. This echoes the role of social environment and religion in shaping grit of undergraduate students in collectivist cultures such as Pakistan (Arif, Khan, & Abbas, 2021).

Meanwhile, Amal (cluster 3) and Rema (cluster 4) appeared to equate academic persistence largely with elements of buoyancy, especially proactive coping whereby they try to ‘find different ways’ to finish a challenging task or solve a problem ‘in any way’.

For me, it means to keep working on what you have to do even if you don’t fully understand it or seems challenging, you need to try to understand and find different ways to finish it. (Amal, *Striver and Language Master but Mediocre Self-believer Profile, Cluster 3*)

For me, I see perseverance as trying to write even if I face a difficulty. I try to overcome it in any way, meaning that difficulties don't stop me; I try to solve them and persist in my writing, so I always aspire to do my best and get good grades. (Rema, *Writing Struggler and Efficacy Straggler Profile, Cluster 4*)

Overall, for participants in this study, persistence in writing was emphasised in relation to concepts pertinent to grit, especially perseverance of effort and adaptability including continuous effort and trying, determination, diligence, overcoming setbacks, and commitment to development and achieving good grades. Two participants further mentioned compliance with requirements and obligations set by others as an element of long-term persistence. Two participants echoed a dimension of buoyancy when asked to define academic persistence.

The findings imply that regardless of their grit, buoyancy and self-efficacy profiles, the participants depicted a general agreement in their definitions of academic persistence. Specifically, they considered elements of grit and buoyancy integral to academic persistence in writing, not only for solving problems and achieving good grades but also for skill development. The alignment in the participants’ perceptions concerning academic persistence seems to concur with relevant literature that recognises buoyancy as a key conceptual correlate to grit (Duckworth et al., 2007; Sudina & Plonsky, 2021). For participants in this study, persistence was regarded both as a single and multi-dimensional construct influenced by their clustering profiles. Notably, participants in Cluster 4 who displayed profiles with low levels of grit,

buoyancy and self-efficacy, namely Ruby and Rema tended to perceive persistence as a single dimensional concept mainly in terms of effort and trying. However, those with high levels of grit and were either high or limited in buoyancy and self-efficacy expressed a fluid understanding of persistence. Thus, the findings demonstrate that learner clustering profile may impact their understanding of academic persistence in writing.

5.2.1.2 Dealing with difficulties as a major contributor to learner experience of academic persistence

This theme was based on participants' reflections on their persistence experiences in dealing with setbacks and challenges. In particular, participants were asked to describe their experiences of 'bouncing-back' from writing setbacks. Prior to discussing relevant themes concerning this question, it is important to revisit how grit and buoyancy have been addressed here. This is due to the fact that the two concepts underscore dealing with setbacks, albeit with one highlighting deliberate effort in handling setbacks that affect long term endeavours and enduring pursuits, whereas the other encapsulates navigating everyday short-lived stressors or temporary resilience that can usually trigger both automatic or unconscious and deliberate or conscious behaviours. Predefined codes were used in relation to Marin and Marsh's (2008) and Sudina and Plonsky's (2021) definitions of academic buoyancy, including dealing with study stress, coping with ordinary study challenges such as poor grades, criticism, exam pressure and deadlines. In addition, prespecified codes relevant to academic grit included dealing with setbacks consistently and over time, adaptability and adjustment to changing situations, maintaining relationships with others, and desire for improvement. Many of the participants recounted their persistent experiences, highlighting the struggles they encountered in the writing subject as key contributors to their persistence (Figure 5-2). They further expressed the approaches they undertook to navigate these obstacles (Figure 5-3).

Learner persistence experience



Reflecting on difficulties

My main difficulty is not having ideas and my limited linguistic abilities. I remember I wanted to write a paragraph about my hobbies, but I did not know how to say crafting in English. (Reem)

Sometimes, the instructor is not clear because of language issues, and the way she explains sometimes is not clear. (Rema)

I can write, but if you asked me to write now, I might use limited vocabulary. So, when I write, I feel I use the same words repeatedly, and my ideas become repetitive. I always need long time to write and when I read my writing, I feel I say the same thing again. Do you understand what I want to say (Ruby)

Mostly in the language itself. I don't have many words, so this makes it difficult for me. It takes time to find words, and sometimes I find words, but they are advanced, and I don't know how to use them correctly. So, I always need to see examples. (Ruby)

I had enthusiasm at the beginning to understand and improve my writing because almost everyone who taught me the subject was foreign [non-Saudi]. So, the accent was a challenging factor that I had to improve on my own. But honestly, I lost interest in writing in the middle of the semester because of the instructor. The lecture was heavy on me, and all my effort was just to get grades and not because I was excited about the subject. (Leen)

I always have ideas, and I can express them in Arabic, but the difficulty is finding the right word in English, which prevents me from expressing all my thoughts. Maybe because I'm still at the first level, we don't write much, and even if I know the word, for example, I'm not sure about my spelling. Sometimes, it's difficult for me to write a topic sentence. The instructor also takes a long time to explain any topic, so I get distracted. Her accent is not always clear. I always write in pencil and then rewrite when I finish, and this takes a long time because I'm not sure about the ideas and not confident that I can cover all the thoughts in my mind. (Leen)

As I told you, the most significant difficulties were linguistic, mostly related to vocabulary and, to some extent, grammar. But the most challenging part for me was understanding the course material. It was difficult for me to grasp the content. I don't understand the instructor's accent, and the explanation is not clear to me, especially for the new things I haven't studied before. I hardly understand half of the words the instructor uses. I don't know their meanings. And I can't open my phone to search for them at the same time. So, when she uses unfamiliar words, I feel a bit lost. Do you understand what I mean? (Jood)

For me, the most challenging thing is the language, like some words: I find it difficult to memorise many words: Now, I'm trying to memorise more words and translate what I read to improve my vocabulary: When I can't find the appropriate word, especially when I can't use a dictionary or the internet, it makes me anxious and worried about how I can write: This affects the quality of my writing. (Fajyr)

The words I had at the beginning were very limited, so writing was difficult for me. I was afraid and hesitant when I wrote because of this. (Fajyr)

Sometimes I don't understand the instructor's accent; it's not clear. (Fajyr)

The course is easy, and writing is not difficult. The instructor is clear. However, sometimes in class, I get lost, and I don't feel like I'm attentive. I haven't tried other writing courses, but I don't know why; the course, in general, is easy, not difficult at all. (Amal)

I think the problem is with my handwriting and how I write the letters. They didn't teach us the writing rules, and the rules differ from one school to another. So, I feel like I'm facing a bit of a problem with the handwriting. This is the biggest difficulty I'm facing right now. (Amal)

I'm afraid of the professor herself because I don't know how she graded me. Sometimes, I am confident in my answer, but I get surprised by the scores I received. I wrote a paragraph and sent it to her to understand where I went wrong, but she did not respond. (Farah)

At first, I'm confident but I did not receive so many writing scores in my life. I didn't use to have writing as a standalone course. We normally had one English course in high school. So, when I joined university, I considered writing as difficult, but in the end, I got used to it. (Wesam)

I faced difficulty in remembering some words. Sometimes, even if I had memorised them, stress and distractions make me forget the words. For example, there was noise outside the classroom, I couldn't remember words, and my thoughts got interrupted, making it challenging to write and express my ideas. (Heba)

Figure 5-2 An Overview of Participants' Faced Difficulties

Learner persistence experience



Approaches to manage difficulties

Yes, I try to ask my friends and expand my vocabulary and use a dictionary. I also focus more on developing my grammar I use grammar reference books to help me. (Rema)

I cope with it through memorisation. (Reem)

Not really. I mostly rely on translation. I translate every word the instructor says. (Ruby)

As for how I overcame these difficulties, I don't rely on the instructor's explanation. I go back to the book to explain to myself and understand better. Also, for assignments, I use Grammarly to make sure of my writing. I watch shows in English to help me develop my english (Leen)

I try to write down the words I don't understand and search for them later. Sometimes, for a word I don't understand, I forget it. Did you understand what I mean? When I study, I explain to myself, and for what I don't understand, I search for it on the Internet because I can't go back to her explanation, and I can't do anything. I have to explain it to myself and depend on myself. (Jood)

Currently, I'm trying to improve both my writing and reading skills at the same time to help me focus more. I feel they are connected. So, I believe that this is the right way, and it has helped me because when I read, I try to write about what I'm reading. I notice that my writing is developing everytime I do this. (Amal)

Yes, sometimes when I identify a word to translate but I can't, I ask my colleagues about it. I also search the Internet for topics I don't understand. (Jood)

I overcame it by learning new words and common words in writing that I feel I need to use. (Fajyr)

Sometimes, especially when there is an assignment due and I'm not sure about my writing, I ask my sister, who is an English teacher, to review and correct it [my writing] before submitting it to the professor. (Fajyr)

I focus more on the course book to understand what she is saying. (Fajyr)

Yes, because I get high grades in most of the subjects, A+, but in writing, my grades are low because I'm distracted. I don't feel like there is anything to help me focus with the instructor. (Amal)

I tried to focus with the professor and pay attention to everything she says because she speaks English more clearly than Arabic. I try to understand her English although there are things I don't understand, probably due to her accent, I pay attention to everything she does say. I recognised what she prefers in writing, and I followed that. (Farah)

During the lecture, I focus with the professor, and when I am alone, I try to search for things I did not understand, using the internet and YouTube to help me (Farah)

I tried to look for any possible way that can help me write a paragraph. For example, there is a checklist in the book after each chapter; it helps me so much to check what I need to do. I also when I have time for assignments for example, I write in Arabic then translate my writing into English. (Wesam)

I tried to write the words I memorised in context, in a sentence, or in put them randomly. Sometimes I write them in Arabic too so that if I forget them, it doesn't hinder me from writing. (Heba)

Figure 5-3 A summary of Participants' Coping Experiences

When discussing the difficulties experienced, most of the participants referred to issues stemming from language competency and proficiency as well as the writing instructor. With a profile of a Striver and Language Master but Mediocre Self-believer and Stress Manager (Cluster 3), Leen, for example, identified a strong link between her continuous effort and the difficulties she faced, implying her self-reliance. Whilst admitting her striving effort, she also overwhelmingly emphasised some linguistic gaps relating to her English proficiency and competency such as difficulties in finding the right words, spelling, and articulating her ideas in English. It seems that engaging in reflections may have led Leen to recognise her linguistic gaps compared to her answers in the self-report. She further described challenges arising from the instructor's unclear accent and lengthy explanations. She recalled her coping effort with these difficulties, highlighting her orientation to seek resources as she would revisit the course book and use Grammarly and English shows.

I always have ideas, and I can express them in Arabic, but the difficulty is finding the right word in English, which prevents me from expressing all my thoughts. Maybe because I'm still at the first level, we don't write much, and even if I know the word, for example, I'm not sure about my spelling. Sometimes, it's difficult for me to write a topic sentence. The instructor also takes a long time to explain any topic, so I get distracted. Her accent is not always clear. I always write in pencil and then rewrite when I finish, and this takes a long time because I'm not sure about the ideas and not confident that I can cover all the thoughts in my mind.

As for how I overcame these difficulties, I don't rely on the instructor's explanation. I go back to the book to explain to myself and understand better. Also, for assignments, I use Grammarly to make sure of my writing. I watch shows in English to help me develop my English. (Leen, *Striver and Language Master but Mediocre Self-believer Profile, Cluster 3*)

Figure 5-2 shows that persistence in the face of language related difficulties, especially in relation to the use of the appropriate vocabulary was prominently voiced by the participants. In this vein, Ruby (Cluster 4) stated that she ‘needs long time to write’ because of her restricted vocabulary. This aligned with her Writing Struggler and Efficacy Straggler profile. Fajyr (Cluster 1) transparently acknowledged that:

When I can't find the appropriate word, especially when I can't use a dictionary or the internet, it makes me anxious and worried about how I can write. This affects the quality of my writing

Fajyr further openly admitted being ‘afraid’ and ‘hesitant’ due to her limited vocabulary, making writing ‘difficult’ for her. This finding was expected since Fajyr displayed a profile of a Gritty Striver but Help-seeker and Self-doubter. Heba (Cluster 3) stated similar ideas, describing that writing becomes ‘challenging’ when she cannot remember words. In dealing with this difficulty, two participants explained that they relied on memorising words as put by Reem ‘I cope with it through memorisation’ and Heba who said:

I tried to write the words I memorised in context, in a sentence, or in put them randomly. Sometimes I write them in Arabic too so that if I forget them, it doesn't hinder me from writing.

Alongside memorisation, Heba chose translation as a useful approach to persist through the linguistic difficulties. This was also apparent in Ruby’s response who mentioned that she ‘mostly relies on translation as she ‘translates every word the instructor says’. Many participants also described their persistent experience in dealing with this difficulty by referring to external sources of help. This may simply reflect that features of resourcefulness and adaptability are key for grit and buoyancy among Saudi female undergraduates. These features have most likely been enacted to persist in moments of difficulties. In relation to this, the triadic model of grit clearly highlights adaptability as integral to grit while other studies acknowledge the importance of learned resourcefulness for grit and persistence, especially as a mitigator for

writing apprehension (Millett, 2023). This study thus indicates that resourcefulness was a salient characteristic among participants in all profile groups. However, participants in low vs. high grit, buoyancy and self-efficacy profile groups appeared to demonstrate resourcefulness uniquely. Participants who constituted a Struggler and Straggler profile such as Reema and Ruby, shared preferences to use resources such as a dictionary or grammar reference book, as well as rely largely on translation. Those with profiles of high grit such as Jood and Wesam, for example, discussed approaches such as ‘searching the internet’ for help and relying on the ‘checklist in the book after each chapter’ to understand what is necessary to do. They further exemplified elements of adaptability to the difficulty in relation to maintaining relationships with friends and relatives to seek external help. For example, Jood stated:

Yes, sometimes when I identify a word to translate but I can't, I ask my colleagues about it. I also search the Internet for topics I don't understand.

Fajr reiterated this idea by illuminating that she would refer to her sister for help:

Sometimes, especially when there is an assignment due and I'm not sure about my writing, I ask my sister, who is an English teacher, to review and correct it [my writing] before submitting it to the professor.

Another challenge cited by almost all participants was the impact of the writing course instructor on them. Most of the participants expressed their frustration with issues related to the instructor such as her accent, explanation, and feedback, leading them to exhaust several approaches to persist through this challenge (see Figure 5-3). Fajr, for example, described her approach to stay focused despite her struggle to understand the instructor's accent stating that she ‘focus[es] more on the course book’ to help her ‘understand what the instructor is saying’. Likewise, Leen emphasised that she ‘do[es] not rely on the instructor's explanation’. Instead, she uses the course book to ‘understand better’ as she tried to stay focused, and resist being ‘distracted’ because of the instructor's elaborate explanation. Moreover, she discussed how the

impact of the teacher evoked a sense of detachment from the writing course stating that:

I had enthusiasm at the beginning to understand and improve my writing because almost everyone who taught me the subject was foreign [non-Saudi]. So, the accent was a challenging factor that I had to improve on my own. But honestly, I lost interest in writing in the middle of the semester because of the instructor. The lecture was heavy on me, and all my effort was just to get grades and not because I was excited about the subject. (Leen, *Striver and Language Master but Mediocre Self-believer Profile*, Cluster 3)

Farah (Cluster 2) disclosed her feelings of anxiety and astonishment as she recalled her experience with approaching the writing instructor for feedback on her score. In the quotation below, Farah alluded that the instructor seemed to provide scores as she corrected Farah's assignments but failed to connect with her.

I'm afraid of the professor herself because I don't know how she graded me.

Sometimes, I am confident in my answer, but I get surprised by the scores I received. I wrote a paragraph and sent it to her to understand where I went wrong, but she did not respond.

This was interesting to uncover about the impact of the writing instructor on learner persistent experience. Even though Farah sought the instructor support to learner about her performance, individual support was mostly not made available to her. To push through this challenge, Farah ensured that she paid attention to the instructor during the class. With a Striver and Problem-navigator profile, Farah's approach to persistence symbolised her determination to move forward.

I tried to focus with the professor and pay attention to everything she says because she speaks English more clearly than Arabic. I try to understand her English although there are things I don't understand, probably due to her accent, I pay attention to everything

she does say. I recognised what she prefers in writing, and I followed that. (Farah, *Writing Striver, Problem-navigator and Efficacy Master Profile, Cluster 2*)

From the quotation above, it seems that a pivotal factor of Farah's persistence was adhering to the instructor's requirements. This reflects Theme 1 that highlights compliance with requirements and obligations set by others as an element of persistence. Notably, the participants demonstrated different approaches to confronting the difficulties in the writing course from finding the appropriate word to complete a task to pushing themselves through the lack of individualised support. The different aspects of learner experience of academic persistence that the participants shared lend support to the triadic model of grit that reinforces perseverance of effort, desire for improvement and adaptability to situations. Simultaneously, it aligns with the buoyancy framework that integrates 'proactive approaches' to 'dips in motivation' (Martin & Marsh, 2008, pp. 54-55), highlighting both dealing with temporal hurdles and problem-focused coping. Thus, the interpretation of this theme corresponded directly to the conceptual frameworks.

5.2.1.3 Academic persistence contributes to dynamic self-efficacy beliefs.

This theme was based on the question concerning the role of self-efficacy in shaping learner academic persistence as defined by grit and buoyancy. L2 writing self-efficacy is seen as a three-dimensional construct, encompassing confidence beliefs in relation to language use, metacognitive control, and learning and performance (Teng et al., 2017). Guided by this theoretical framework, writing self-efficacy refers to students' judgments about their writing capabilities to use and perform in English as well as in relation to their confidence in their self-regulation. Notably, linguistic self-efficacy was the pervading theme among the study participants compared to the other dimensions of self-efficacy (Figure 5-4). This may stem from the sample characteristics, being EFL first year university students. In relation to this, some participants reported a sense of self-doubt in terms of their linguistic capabilities.

self-efficacy and confidence issues

I give myself an eight.

Because I work hard so I'm confident that my effort will help me to write in a good way. (Wesam)

My writing is not bad; in fact, it's good, especially free writing when I can express what I want.

My strength is that I can write well, thank God. I have the language that enables me to write, meaning writing is not an obstacle for me. (Farah)

Not very confident due to the self-doubt. If you ask me to write a topic, I won't be satisfied because I'll have mistakes.

I don't feel confident in my writing without relying on external sources to use words. I rely on a dictionary or the internet, and I can't depend solely on the words I know because I repeat my ideas. I feel that I write and rewrite but still my writing is not good. I had to retake the foundation year because my writing was poor. (Rema)

I think I'm good at writing, not extremely proficient, of course. I need more practice, especially with the use of words and sentence structure. Sometimes I forget some letters in writing some words, but I believe I'm good at expressing myself. There might be errors in my writing, but this doesn't stop me from conveying my ideas.

My vocabulary is weak but not seriously weak, maybe a five. With that said, however, I think I can express my ideas and convey my thoughts to the recipient. (Heba)

Not very highly confident. I need someone to check after me. (Reem)

I wouldn't say I'm a professional, but I consider myself good in it. Because even if we have a test and we have to write a paragraph, I can write a complete paragraph without memorising, just by understanding what is required of me. I can write without relying on memorisation, and my grades are always high, thanks to God. I often practice outside university; I try to write paragraphs and watch English films. (Leen)

Because I can't write about everything. Sometimes, I feel lost, especially if the topic is unfamiliar, as I know I won't be able to write about it correctly. (Ruby)

I can say that I am confident that I am improving myself, but I'm still working on myself and improving my English writing. (Amal)

I need to know more words to make writing easier for me. Writing depends on words, and my vocabulary is not good enough yet. I sometimes get confused in spelling and grammar. Sometimes I am hesitant and anxious when I have to write, maybe because I still can't express my thoughts fluently, and I feel I need someone to check after me. (Fajyr)

I feel like I'm at the beginning of the journey. I haven't progressed in terms of writing, I mean, my English writing hasn't improved much, and I don't have enough vocabulary to write long passages. So, writing is difficult for me, and I consider myself a beginner in the field. The reason is that I am still in the first level, as I mentioned, everything is new to me, and everything is in English. No, when it comes to confidence, thank God I can write. I'm not hesitant, but sometimes I need more time, and I rewrite a lot because sometimes I don't know exactly how to express myself in English. (Jood)

Figure 5-4 Participants' evaluations of their efficacy beliefs

Fajyr and Jood shed light on their limited confidence in their writing skill due to their English proficiency levels:

Sometimes I am hesitant and anxious when I have to write, maybe because I still can't express my thoughts fluently, and I feel I need someone to check after me.

I need to know more words to make writing easier for me. Writing depends on words, and my vocabulary is not good enough yet. I sometimes get confused in spelling and grammar. (Fajyr, *Gritty Striver but Help-seeker and Self-doubter Profile, Cluster 1*)

I feel like I'm at the beginning of the journey. I haven't progressed in terms of writing, I mean, my English writing hasn't improved much, and I don't have enough vocabulary to write long passages. So, writing is difficult for me, and I consider myself a beginner in the field. (Jood, *Gritty Striver but Help-seeker and Self-doubter Profile, Cluster 1*)

Despite struggling with a lack of confidence in her linguistic skills, Jood appeared less hesitant to write, which may suggest that she felt more confident in her performance.

No, when it comes to confidence, thank God I can write. I'm not hesitant, but sometimes I need more time, and I rewrite a lot because sometimes I don't know exactly how to express myself in English. (Jood)

This, however, does not align with her profile that is characterised by low self-efficacy, especially in answering questions such as 'I can write a composition with a clear organisation or structure', and I can think of different ways to help me to plan before writing and I can understand the most complex material presented by the instructor of writing courses. Such questions prompted low efficacy scores for Jood. The disparity may arise from differences in instruments as the interview may have triggered her to reflect on her own personal experience compared to the information obtained through predetermined scales. During the interview, Jood reflected on difficulties arising from her limited English proficiency, her struggles in understanding the course materials and the instructor's accent. It could be the case that

reflecting on her experience of grappling with these difficulties, especially as she felt relatively 'lost' may have led to positive fluctuation in her efficacy-beliefs. Jood's account of her self-efficacy beliefs finds resonance with findings from Hardy (2014), who observed that temporal experiences of failure provoke effort that can alter the form and trajectory of self-efficacy.

For some, however, language use was not a major concern. Wesam, for example, overtly described her confidence in her writing skill, associating it with her effort.

I give myself an eight. Because I work hard so I'm confident that my effort will help me to write in a good way. (Wesam, *Striver, Problem-navigator and Efficacy Master, Cluster 2*)

Farah, who shared the same profile of Striver, Problem-navigator and Efficacy Master as Wesam's, articulated that her English is 'good' as it 'enables [her] to write', stressing that 'writing is not an obstacle for [her]'. Meanwhile, Rema talked about her lack of confidence in her writing skill induced by her self-doubt. She emphasised that she rarely trusted her writing without relying on language resources to support her 'poor' writing skill. This was not surprising about Rema considering her profile showing low levels of the examined constructs, labelled as Writing Strugglers and Efficacy Stragglers. These findings mirror the links that have previously been recognised between academic self-efficacy and buoyancy (Yun et al., 2018) and between self-efficacy and grit (Datu et al., 2017a), especially in collectivist cultures.

Leen and Heba reaffirmed the dynamic nature of self-efficacy among the study participants. Demonstrating a profile of a Striver and Language Master but Mediocre Self-believer and Stress Manager, Heba felt confident in her writing skill despite acknowledging gaps in her language proficiency when talking about her confidence. Similarly, Leen expressed confidence in her ability to perform in writing and in her self-regulation. However, Reem remained less confident in her writing without verifications from others. The perceptions of the participants provided unique insights into the characteristics of their profiles that extended the findings of the cluster analysis. In particular, the participants' insights about their understandings of academic

persistence, their experiences in handling setbacks, and their judgments of their confidence offered a unique layer to the literature that underpins the concepts of academic grit, buoyancy and self-efficacy within the Saudi context. Almost all members of the identified clusters referred to perseverance of effort as a key component of persistence. When questioned further as to reflect broadly on their persistence experiences, those in the low grit cluster were concerned with trying to address deficiencies in their English proficiencies whereas those belonging to the high grit group took persistence further as they linked it to skill development, identification of weaknesses and commitments to requirements. Members of the high grit cluster also showed positive changes in their efficacy beliefs after reflecting on their concrete experiences of persistence compared to those in the low grit cluster. It is perhaps only through understanding this first that practical grit and buoyancy interventions can be developed.

5.2.2 Stimulated Recall Interviews Results

To inspect closely learners' persistence in navigating challenges in a writing task, retrospective evidence was obtained from the 10 participants that had previously participated in the semi-structured interviews. Participants were given a Cloze test, incorporating a fill-in-the-blank part and a summary writing part. Each participant was then interviewed to reflect on their performance during the task. This was specifically intended to observe narrowly how members of the four identified profiles navigated challenges when stimulated to reflect on a shared experience rather than on broad reflections of different past incidents. In doing so, a more thorough understanding of the characteristics of members in the identified profiles can perhaps be obtained. Without retrospective evidence, non-cognitive individual differences and academic performance relations could hardly be explained (Credé et al., 2017). This impact of retrospection might truly elucidate how grit may contribute to adaptive behaviours or the 'buffer' dimension of grit against stressors (Kelner, Hunter, McClain, & Elledge, 2023)—an aspect that is not adequately covered by estimates based on self-report items (Credé et al., 2017). Informed by the results from the semi-structured interviews, the analysis of the

stimulated recalls was in relation to the persistent effort of the cluster members during the test, their approaches to navigate challenges, and their confidence in their responses. One of the overarching themes from the results of the semi-structured interviews was relative to members' persistent effort in the face of difficulties. Specifically, members belonging to the high grit clusters sought multiple resources to navigate difficulties than those in the low grit profiles who widely relied on seeking help from others. Throughout the recalls, participants discussed their attitudes towards completing the test. Of the ten participants across all profile clusters, three members belonging to different profiles considered withdrawing their participation while seven did not consider so (Figure 5-5).

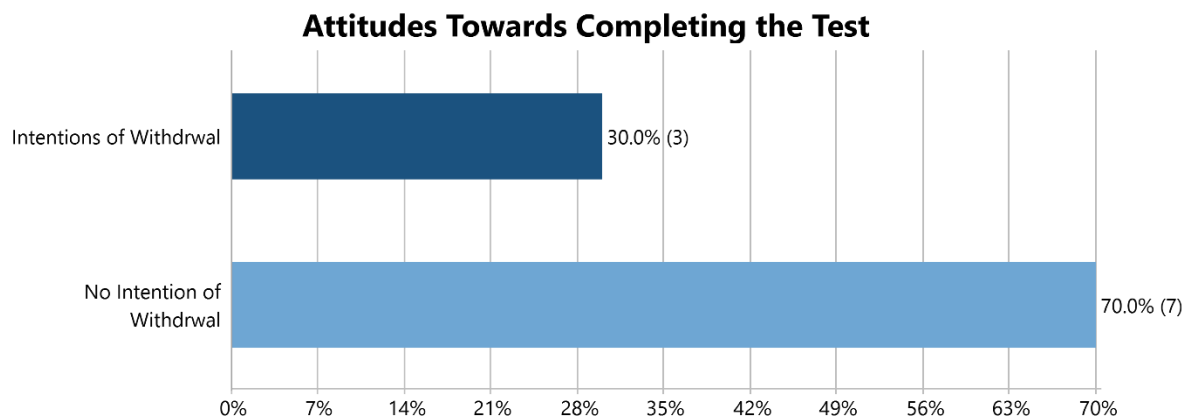


Figure 5-5 Attitudes Towards Completing the Cloze Test

Moreover, participants recounted the difficulties they faced in answering the test and described the approaches taken to surmount them. Excerpts from the stimulated recalls are presented in this section. The discussion is organised by a comparative analysis between the identified high and low learner profiles of grit, buoyancy and self-efficacy.

5.2.2.1 The High Grit Profiles

The majority of members belonging to high grit profiles exhibited more positive views towards completing the test. However, two members whose profile was Strivers and Language Masters but Mediocre Self-believers and Stress Managers (Cluster 3) revealed having intentions of

revoking their participation. While this may appear contradictory to their high grit and mediocre buoyancy, it was probably more in line with their average confidence. For example, Amal thought of withdrawing her participation since she was uncertain about her answers.

In all honesty, I thought about not completing the test because I was slightly tired and not really sure about my answers. I felt distracted especially in writing the summary. Maybe because I was not sure about my answers in the first part which affected my summary. I did not want to leave it blank. So, I tried to summarise in two sentences. I felt this part was very easy because, like free writing, not like the first one which I had to choose the words and put the sentences together.

Reem stated that she decided to deliberately discontinue completing the test due to her limited language proficiency.

I thought of postponing my participation and focusing on the current subjects at hand that I have to handle. My vocabulary is limited. It was hard for me to write the summary. I know that you want me to use my own words and not to copy the text so I could not answer this question and I just completed the first question.

Again, while Amal expressed average confidence in the semi-structured interview, she also was uncertain of her ability to perform in the test. Despite her doubts and unlike Reem, she managed to complete the task and had a summary performance score of two out of five in contrast to Reem who had a zero. Likewise, while Amal adjusted her inclination towards completing the task, Reem appeared to be rigid concerning not completing the task, realising that she would not get instant verification from others. The finding about Reem and Amal is important because it helps to understand intricacies better both within members belonging to the same high grit clusters and across clusters. For example, while belonging to Strivers and Language Masters but Mediocre Self-believers and Stress Managers, Amal's stimulated recall showed that she remained mentally tough despite initial hesitations to persist during the test. This was not apparent from the results of both the questionnaire and the semi-structured interviews.

Specifically, Amal had a tendency to use more caution through adjusting her inclinations. Equally, Jood who had a Gritty Striver but Help-seeker and Self-doubter profile (Cluster 1) seemed to adjust her decision when asked about her intention to revoke her participation. She stated,

No, I like new things that I can learn from. However, it might be due to time constraints and the difficulty of answering something new without grades. I did not want to answer the writing part, but I tried because it was only a summary.

This builds on previous research that found gritty individuals characterised by a willingness to adapt to situations through constantly adjusting their behaviours (Datu et al., 2016). More specifically, it seems that those with a high grit profile appeared to adjust their effort at varying levels. This may become discernible when the purpose was to write a summary. Amal and Jood preferred to continue their effort whereas Reem decided to cease her persistence. The finding suggests that participants who had positive fluctuations in their efficacy beliefs are more likely to persist and adjust their inclinations compared to those with fixed limited efficacy beliefs. It further implies the important role that efficacy beliefs play in behaviour adjustments of the cluster members. That is, when cluster members believed they were able to handle the test, they managed to complete the test and reconsidered revoking their participations. Datu et al. (2017a) confirmed the links between higher self-efficacy beliefs and persistent effort and adaptability to situations. Similarly, Luthans et al. (2019) established that grit and performance connections become salient through personal psychological resources, especially self-efficacy and resilience.

While no significant mean differences were found among the identified high grit clusters based on the global writing score, the findings from the Cloze test alone revealed a disparity in performance between members belonging to a homogenous cluster. For example, sharing the same profile of Writing Strivers, Problem-navigators and Efficacy Masters (Cluster 2), Farah had a higher performance score in the summary question than Wesam. In fact, Farah had the highest score across all clusters. While most of the participants with a high grit cluster had a

summary score between two and three, Farah received a score of four out of five and Reem had a zero. The findings of Farah could perhaps be interpreted in relation to the way she recognised persistence and her levels of self-efficacy. It seems that Farah was aware of the gaps in her writing skill, affecting her responses in the test and her subsequent actions to manage the faced difficulties. Her confidence in her writing skill was prevailing in her responses to the questionnaire, her reflections during the interviews as well as her responses to the test. The finding about Farah highlights the relative role of members' perceptions of persistence and their efficacy levels in influencing their performance during the test. Participants' awareness of their inadequacies together with their levels of self-efficacy may shape how they persist in the face of difficulties. Previous research emphasised the role that metacognitive beliefs play in how learners respond effectively to test setbacks (Putwain, de Wal, & van Alphen, 2023). In addition, cluster members showed an alignment in their adaptive approaches to navigate the test when they were asked about their strategies. The most common strategy among members of the High grit clusters was a focus on meaning with 21 references to meanings across all clusters. Farah stated that she ensured that she understood the text accurately before answering the question. She highlighted,

I was thinking of choosing the option closest to the meaning based on my understanding. I was reading the text to fully understand the meaning of the passage.

Wesam, who shared the same profile with Farah, also was concerned with understanding the meaning as she put it:

I read the passage and then reread the options. I was thinking about which option I could use to make the sentences connected.

Belonging to Strivers and Language Masters but Mediocre Self-believers and Stress Managers (Cluster 3), Heba blatantly mentioned focusing on meaning to answer the fill-in-the-blanks question.

For the words I did not understand, I tried to read the preceding and following sentences to get a general understanding of the meanings.

Leen expressed similar views surrounding the importance of understanding the context. She further highlighted using translation and trying all the provided options to offset her mediocre efficacy.

I felt the context was leading me to choose "as a result." I was thinking what the possible answer could be that fits the meaning, trying to translate the sentences into Arabic in my head, and I tried with all the choices. I decided to choose "as a result" because it felt more appropriate.

Reem, Amal (Cluster 3), and Jood and Fajyr (Cluster 1), all capitalised on understanding the meaning before making their choices in the Cloze part. Jood stated, "I relied on what I thought to be the best fit because I read each part several times". Fajyr said, "I found it a bit difficult to respond without reading the sentence multiple times to understand its meaning better". Reem emphasised, "I was thinking about the most appropriate meaning". Amal declared, 'Every time, I read the question first to ensure that I understood it correctly'. The findings suggest that when cluster members responded to a shared experience, they may exhibit substantial agreements in their adaptation, especially when imposing time limits. The findings align with findings from Gao et al. (2022) who reported no significant differences between learners with high grit in limited explorative tasks. According to Gao et al. (2022), in short-time challenging tasks, students with high grit would prioritise staying in the task than changing strategies.

5.2.2.2 The Low Grit Profile

Members belonging to the Writing Strugglers and Efficacy Stragglers perceived the test as somehow challenging. Ruby described the test as relatively difficult stating:

It was quite difficult; maybe the summary part required more focus and writing.

Similarly, Rema considered the test difficult for her, saying:

It was not so easy. Maybe the first question was easier for me because I only have to make choices compared to the second question.

As for their test performance, Ruby had a lower summary score compared to those in high grit clusters. While having a zero, Ruby did not decide to leave the question unanswered rather she sought to quickly copy the main text. When she was asked about her response, she acknowledged copying the main text due to inadequacies in her language proficiency and driven by extrinsic motivation.

I didn't want to leave it blank without answering because even if I did, I wouldn't get any points: I also was not sure about the spelling, so I tried to use the main text.

She further emphasised her orientation towards grades when questioned about her intention to withdraw participation. She justified her impulsive response stating that:

Honestly, no, because I chose to participate, but maybe I didn't take it as seriously as I would in a real test with grades.

In terms of the adaptive strategy, Ruby did not seem different from members of the high grit clusters as she was concerned with understanding the meaning.

I translated the sentences to understand which choice I can use here.

It was difficult to make conclusions about Rema's performance during the test in relation to her clustering profile. As she demonstrated relatively a similar performance to those in the

high cluster, especially in the summary question. The findings may prove that learner persistent effort may not be indicative of their cognitive abilities. They further suggest that grit and buoyancy may significantly enhance learners' academic performance through improved self-efficacy beliefs. However, grit, buoyancy and self-efficacy may not have significant impact on students' academic performance when artificial limits are placed upon students. The findings of no differences may simply be explained that members of the clusters may have had less control over their behaviours to meet the demands of time limits.

5.2.3 Mixed-methods Analysis:

To explicate further the understanding of grit, buoyancy and self-efficacy in relation to the identified profiles, both qualitative and quantitative findings are integrated. For each profile group, learner characteristics of persistence and confidence are discussed in relation to the results of the cluster analysis and in conjunction with findings from the interviews.

5.2.3.1 The Writing Strivers, Problem-navigators and Efficacy Masters (*High profile, Cluster 2*)

Based on the quantitative analysis, this profile consisted of a moderate clustering number of students ($n=12$). Students in this profile group had the highest global writing mean score $M=2.06$, $SD=1.73$ compared to the other three profile groups. In addition, significant mean differences in relation to writing performance were found especially between learners in this high profile and those in the low profile ($n=12$, $M=2.06$, $SD=1.73$ vs. $n=16$, $M=-1.831$, $SD=2.4$, $p<.001$), respectively. Despite the differences between the high and low cluster, no statistically significant mean differences were observed between student group in this profile and those in other high/moderate and high/low profiles. These results aligned closely with the interview findings as learners demonstrating particularly high grit tended to link academic persistence to the perseverance of effort dimension of grit while expressing elements of adaptive control. Specifically, learners in the writing Strivers, Problem Navigators and Efficacy Masters profile

appeared to capture continuous effort, commitment to development and compliance with requirements in their explanations of academic persistence.

When reflecting on their persistence experiences, members of this profile highlighted difficulties arising from the instructor's unclear accent. They verbalised their resourcefulness by highlighting their self-directed approaches including paying attention to the instructor's preferences and using the checklists in the course book. One member of this profile symbolised an unrelenting determination to move forward after her need for instructor's support was not met. This determination may pinpoint how members of this cluster exercised careful control to push through challenges, corroborating the findings that gritty individuals often have a profile that entails more cautious control (Aguerre et al., 2022). Furthermore, and in alignment with their high scores of self-efficacy beliefs, members of this profile vocalised their confidence in their writing skills during the interviews. They also managed to complete the Cloze test to the best of their abilities while navigating the test challenges. They articulated how their persistent effort bolstered their confidence in their writing performance. Such an alignment in quantitative and qualitative results may explain why students in this cluster displayed a profile of Writing Strivers, Problem-navigators and Efficacy Masters. Nonetheless, in terms of performance in WM, all the identified profiles, including students in the high cluster did not manifest statistically significant differences. This result suggests that these four profiles of grit, buoyancy and self-efficacy were less likely to contribute to differences in learners' WM performance and cognitive abilities. The lack of relationships was in harmony with studies that have found no connections between grit and cognitive control in WM performance (Aguerre et al., 2022). Whilst members of this profile did not show significant differences in relation to their adaptation to the Cloze test challenges, they implicitly shed further light on the contribution of metacognition to learner persistence.

5.2.3.2 The Writing Strugglers and Efficacy Stragglers (*Low profile, Cluster 4*)

Based on the results of the cluster analysis, this profile constituted of 16 learners. On average, learners in this profile had the lowest global writing score ($M=-1.831$, $SD=2.4$), compared to the other three profiles. Learners in this low profile of grit, buoyancy and self-efficacy demonstrated significantly lower mean differences in writing performance compared to the other clusters. In particular, they had significantly lower mean differences from those in the High cluster ($n=16$, score $M=-1.831$, $SD=2.4$, $n=12$, $M= 2.06$, $SD=1.73$, $p <.001$), those in Gritty Strivers but Help-seekers and Self-doubters cluster ($n=16$, score $M=-1.831$, $SD=2.4$, $n=8$, $M=1.01$, $SD=1.67$, $p <.009$), and those in the Strivers and Language Masters but Mediocre Self-believers and Stress Managers cluster ($n=16$, score $M=-1.831$, $SD=2.4$, $n=24$, $M=.412$ with $SD= 2.0$, $p <.014$). In the qualitative interviews, members of the writing Strugglers and Efficacy Stragglers viewed academic persistence largely in terms of effort and trying. One member seemed to be driven by extrinsic motivation in the way she understood persistence, relating it to aspiring good grades. This was reiterated in the way they approached the Cloze test. In terms of their persistent experiences, members of this profile appeared to be more concerned with their linguistic skills. Their adaptive behaviour was thus mainly to seek help concerning vocabulary and grammar through asking friends or translating words. Another key characteristic of members in this profile was the clear self-doubts in their writing skill. Evidence from the interviews highlighted this in which Rema acknowledged her low confidence in her writing as she had to repeat the foundation year. Rema further admitted that she would feel unsatisfied about her writing without relying on external resources for verification. Ruby also felt uncertain about her ability to write about unfamiliar topics. This may justify why she was quick to merely copy the main text in answering the summary section of the test. Such evidence may account for the lowest mean scores in writing performance for participants in this cluster. It is possible that learners within this cluster group restricted their effort to navigating their struggles with language compared to those in the other three clusters. Based on the interviews together with their responses to the

questionnaire, it is feasible to conclude that members of this cluster were more concerned with extrinsic motivation compared to those who had high levels of grit.

5.2.3.3 The Strivers and Language Masters but Mediocre Self-believers and Stress Managers. (High grit and LSE, moderate buoyancy and SRE and performance efficacy profile, *Cluster 3*)

This profile was populated with the largest clustering of learners. With 24 members, participants in this profile group did not exhibit statistically significant differences from other clusters that had high grit in relation to their writing scores. Despite significant differences between members of this group and those in the Writing Strugglers and Efficacy Stragglers ($n=24$, $M=.412$ with $SD=2.0$ vs. $n=16$, $M=-1.831$, $SD=2.4$, $p < .014$), no significant differences were found between group of this profile and those with a profile of Gritty Strivers but Help-seekers and Self-doubters $p=.89$ nor those with a profile of Writing Strivers, Problem-navigators and Efficacy Masters $p=.27$. The results of no discrepancies when grit was high compared to differences when it was low could broadly be construed in two plausible interpretations. First, the results could indicate that, on average, members of these high grit clusters were gritty strivers irrespective of their stress management approaches and differences in self-efficacy. Second, it appears that participants with high grit clusters were equally striving to persist in the writing course, but uniquely pushed through difficulties. They were somewhat either overconfident or lacking confidence. Insights from qualitative evidence supported this. For example, some members belonging to Strivers and Language Masters but Mediocre Self-believers and Stress Managers were confident in their writing skill despite their clustering profile. Leen embodied this while she felt hesitant about conveying all her thoughts when writing, she was confident in her ability to write without relying on memorisation. Likewise, Jood whose profile was Gritty Striver but Help-seeker and Self-doubter reported enhanced self-efficacy during the interview compared to her low efficacy score documented in the questionnaire. The finding of positive fluctuation in self-efficacy was not revealed in the quantitative measure, implying that reflections on past enduring experiences provided an impetus for enhanced confidence. Specifically, when learners reflected on their

past experiences of successfully handling difficulties, they were more likely to demonstrate greater self-confidence. This suggests that positive experiences of persistence may therefore impact the dynamics of self-efficacy. It is well-documented that experiences of academic persistence, especially grit, are associated with higher optimistic beliefs and growth mindset as individuals with a growth mindset typically relate their failure to their inadequate effort (Alan, Boneva, & Ertac, 2019; Khajavy, MacIntyre, & Hariri, 2020). If positive experiences of persistence are likely to contribute to growth mindset, this would raise the question concerning their impact on self-efficacy, which the results of this study revealed. The findings of the plausible impact of persistence on self-efficacy together with the information about learners' persistent strategies suggest that persistence may provide a pathway to understanding participants' adaptive patterns and the evolution of their efficacy beliefs. This is important as it implies that a trait-like characteristic such as persistence, conceptualised in this study in terms of grit and buoyancy, may impact both learners' self-beliefs and strategy use. The impact of grit on academic performance becomes apparent through the transformation of stable traits such as grit to dynamic cognitive processes and observable behaviours (Luthans et al., 2019).

5.2.3.4 Gritty Strivers but Help-seekers and Self-doubters. (High grit, low in buoyancy and self-efficacy profile, *Cluster 1*)

This profile group had the smallest grouping of learners ($n=8$). Members of this profile exhibited significant differences from those in the Writing Strugglers and Efficacy Stragglers ($n=8$, $M=1.01$, $SD=1.67$ vs. $n=16$, $M=-1.831$, $SD=2.4$, $p < .009$) concerning writing scores. Concerning their characteristics, they had low scores in buoyancy and self-efficacy scales compared to other members who reported high grit. Their definitions of academic persistence as evident in the interviews were relative to those in the Writing Strugglers and Efficacy Stragglers, mainly highlighting continuous effort and trying. Their adaptive behaviours suggested an orientation to seeking help with instances of self-regulation. For example, while Jood explicitly mentioned that she explained to herself areas that she could not understand directly from her instructor, she also stated that she sometimes would ask her friends. Similarly, Fajyr overtly disclosed that she

relied on her sister for verification. Therefore, they appeared more between the Writing Strugglers and Efficacy Stragglers and the Strivers and Language Masters but Mediocre Self-believers and Stress Managers, especially between Rema and Leen. This may to some extent explain why members belonging to this profile group had high grit with low buoyancy.

In relation to self-efficacy, quantitative and qualitative results diverged. While the quantitative evidence characterised this group with low efficacy, qualitative findings revealed the reverse, particularly for Jood. Despite acknowledging deficiencies in her language proficiency, Jood clearly declared her confidence in her writing skill. Of the four clusters, members belonging to the Gritty Strivers but Help-seekers and Self-doubters demonstrated possibly a hybrid profile, oscillating between the high and low clusters. This may be delineated in both their approaches to manage challenges as well as in how they regarded their self-efficacy as expressed in the interviews. Another contributing factor to the disparities between quantitative and qualitative results for this cluster could potentially arise from the small size of members populating this cluster. More nuances could have been attained with a greater number of cluster members and a larger sample size.

Overall, the mixed methods analysis facilitated a more meaningful interpretation of the identified profiles. The quantitative results identified four nuanced profiles of learner grit, buoyancy and self-efficacy in relation to writing performance. Performance on WM, however, was unlikely to contribute to differences among the identified profiles. The qualitative evidence depicted more information about how members of the identified clusters understood academic persistence. Concepts relevant to persistent effort and striving were recurrent across the identified clusters. With elements regarding commitment to requirements, self-reliance, identification of weaknesses and skill development were more salient among members of the Writing Strivers, Problem-navigators and Efficacy Masters and those belonging to the Strivers and Language Masters but Mediocre Self-believers and Stress Managers. The qualitative findings also revealed insights about the approaches that members of the clusters deployed to

navigate difficulties together with information about how the self-efficacy of a high grit cluster may fluctuate positively.

5.3 Chapter Summary:

So far, this chapter provided the findings of the qualitative portion of this research from ten participants. It highlighted the perceptions of the participants relating to their understandings of academic persistence, their persistent experiences in addressing difficulties together with their self-evaluations of their confidence in relation to their writing skill. The main themes identified through thematic analysis included: 'Always try', 'strive to develop', and 'do what is required': the perceived meaning of academic persistence, dealing with difficulties as a major contributor to learner experience of academic persistence, and academic persistence contributes to dynamic self-efficacy beliefs. Findings from the stimulated recalls detected no substantial differences in the adaptive strategies that members across the four clusters used, especially when time confines were imposed. Notably, members with high grit were fairly characterised with positive attitudes, more mental toughness and higher metacognitive beliefs, affecting their performance in the face of test difficulties. This contrasts with members of the low grit cluster who demonstrated lower efficacy beliefs. Together, these insights provided a well-rounded understanding of the identified learner archetypes. The chapter concluded with a discussion that amalgamated quantitative and qualitative results. The mixed analysis revealed the impact of learners' perceptions of academic persistence both momentary during the test and general persistent experiences on their adaptive behaviour and confidence. The cluster membership analysis together with learners' reflections offered insights into the links between learners' characteristics and their performance. While key significant differences were found between the high and low grit clusters in relation to participants' global writing scores, differences were unnoticeable in terms of their adaptive strategies and performance in the WM tasks. The subsequent chapter will further discuss the key results and findings in relation to the relevant literature explored in Chapter 2.

Chapter 6 Discussion and Conclusion

6.1 Introduction

The main objective of this research was to identify potential learner profiles of grit, buoyancy and self-efficacy and explore inherent intricacies among the identified clusters. To do this, learners' self-evaluations of their grit, buoyancy and self-efficacy were used to profile learners based on their writing achievement outcomes. The research further sought to investigate whether the learner profiles of grit, buoyancy and self-efficacy would possibly contribute to their WM functions. Zhang and Zhang (2023), for example, highlighted the interplay between WM and grit perseverance of effort facet, particularly in relation to L2 writing performance in complex tasks while no relationships were found between grit and WM capacity during performance in WM tasks that required cognitive control and attention switch (Aguerre et al., 2022). The impact of cognition on academic buoyancy was also recognised in the literature, especially in the context of cognitive and metacognitive strategies (Khojasteh et al., 2022). Preliminary research in the areas of grit, buoyancy and self-efficacy documented theoretical and methodological gaps, concerning the underlying structures of these constructs and the reliance on testing associations alone (Datu & Zhang, 2020; Datu & Fong, 2018a; Datu et al., 2015; Datu et al., 2016, 2018b; Xu & Wang, 2023). This research addressed those gaps, utilising a mixed-methods approach by means of self-reported questionnaires, Cloze tests, WM tasks and retrospective interviews. The population sample was 60 EFL Saudi female first year English-major students. Focusing on learner archetypes, the research employed clustering procedures and thematic analysis as the analytical approaches. The central hypothesis underlying this research was that Saudi female EFL first-year undergraduates would exhibit distinct profiles of grit, buoyancy and self-efficacy, affecting their writing performance, WM functions, and their behaviours when dealing with writing challenges. Thus, the research tested whether significant mean differences among the cluster members would be found in terms of writing performance and performance

in WM tasks. It also addressed the underlying components of academic persistence by relying on the psychological capital framework. This framework is deemed particularly important in understanding links between relatively distal personality traits and academic performance because it highlights resources such as resilience and self-efficacy as proximal state-like constructs that may impact academic performance and cognition (Luthans et al., 2019).

Results from quantitative evidence identified four learn profiles—labelled based on learner characteristics of the examined variables (Chapter 4). Mean comparisons across the identified profiles revealed significant differences between the high and low profiles. Evidence from the interviews presented more nuanced clarifications about members belonging to the identified clusters (Chapter 5). This chapter discusses the key findings in relation to the main research questions and the available literature. It finally offers a discussion that highlights the study limitations, contributions, and implications. It concludes with several suggestions that can guide the directions of future relevant research.

6.2 Discussion and Interpretations of the Study Key Findings

The discussion of the main findings is structured in relation to the research questions. Four research questions guided the investigation and structure of the present research. These are restated below:

1. What learner profiles can be identified based on learner characteristics of grit, buoyancy, and self-efficacy in relation to writing outcomes?
2. To what extent does learner performance in the writing course differ based on their profiles of grit, buoyancy and self-efficacy?
3. To what extent does learner performance in WM tasks differ based on their profiles of grit, buoyancy and self-efficacy?
4. What roles do students' profiles of grit, buoyancy and self-efficacy play in shaping students' persistence in writing based on how members of the identified profiles:

- a) *perceive academic persistence;*
- b) *experience academic persistence;*
- c) *identify the role of their confidence?*

6.2.1 Key Results for RQ1: learner profiles of grit, buoyancy and self-efficacy.

Results from the first research question revealed four learner profiles in the Saudi female first-year undergraduate sample, consisting of high or low across all variables, high in grit but low in other variables, and high in grit but relatively moderate across the other variables. These distinct profiles were based on differences in their global writing scores. They were defined according to the cluster defining characteristics of the investigated variables. Those cluster members reporting high scores across all variables were referred to as writing Strivers, Problem-navigators and Efficacy Masters. Cluster members demonstrating low scores across all variables were defined as writing Strugglers and Efficacy Stragglers. In addition, members belonging to a group with high grit and linguistic self-efficacy but moderate in buoyancy, self-regulatory and performance efficacy were labelled as Strivers and Language Masters but Mediocre Self-believers and Stress Managers. Likewise, group members exhibiting high grit, but low buoyancy and self-efficacy were referred to as Gritty Strivers but Help-seekers and Self-doubters.

While as outlined in Chapter 2, discrepancies were noticeable in the literature both in terms of the clustering approach and the profile-structure, this study identified four learner archetypes of grit, buoyancy and self-efficacy among Saudi female first-year undergraduates. This finding is key since no study to date examined grit, buoyancy and self-efficacy simultaneously among EFL Saudi undergraduates through a clustering approach. Issues such as the sample characteristics, the nature of the studied variables, and the analytical approach significantly impact the number of clustering profiles (Alhadabi et al., 2023). While the dominant structure in previous literature seems to be the three-profile structure, the four-level structure allowed more nuanced distinctions among group members in the current study. In fact, while the three-

clustering structure did show distinctions among cluster members: High across all variables, (n=16, accounting for approximately 26.67% of the 60 students in the sample, mean scores 4.25 for grit, M=3.99 for buoyancy and 4.0 for self-efficacy), Moderate (n=24, approximately 40% in the learner sample had high grit M=4.03 but moderate scores across buoyancy and self-efficacy), and Low (n=20, approximately 33.33% of the sample had mean scores 2.99 for grit, M=2.84 for buoyancy and close to 3.0 for self-efficacy), the four-level structure was preferred. Similar to the three-cluster profiles, the moderate cluster in the four-level structure referred to Strivers and Language Masters but Mediocre Self-believers and Stress Managers was proportionally populated with the largest numbers, accounting for approximately 40 % of the sample.

Different from the three-level structure, the four profiles highlighted distinctions in regard to linguistic self-efficacy, demonstrating more nuances in the self-efficacy of members belonging to the high grit clusters. The subsequent ANOVA results suggested that the four-level with more nuances in self-efficacy had a stronger impact on learners' writing scores with 33% of the total variance in the writing scores was explained by the learners' profiles compared to the 22% at the three-level structure. The nuances among the High grit clusters in the four-level was further corroborated by the findings of the interviews as members displaying high grit, but moderate to relatively low efficacy reported fluctuations in their efficacy beliefs. The findings of nuances in self-efficacy may highlight the role of experiencing negative emotions such as self-doubt or fear in promoting adaptive responses and affective engagement among L2 learners (Wu, Tian, & Jin, 2024). The results of the cluster analysis provided an original contribution to literature concerning grit, buoyancy and self-efficacy, especially within the realm of L2 writing research and the Saudi context. It responded to the call in the literature to incorporate person-centred approaches in the study of academic persistence (Maaliw et al., 2022; Martin & Marsh, 2009). The results of the identified clusters may further direct future research to include personalised interventions to this population to improve their writing skill.

6.2.2 Key Results for RQs 2 and 3: the relationships between learner profiles and writing achievement outcomes/ learner profiles and performance in WM tasks

Moreover, results from answering the second and third research questions revealed that learners with high grit demonstrated better performance in writing, but not in WM tasks. Specifically, the second research question tested whether learners with distinct grit, buoyancy and self-efficacy profiles had significant mean differences in relation to writing achievement outcomes as measured by the global writing scores. The ANOVA and post-hoc test results confirmed significant differences between the high grit clusters and the low cluster. The null hypothesis that asserts no effects of grit, buoyancy and self-efficacy levels on changes in writing scores was thus rejected. The finding of significant differences offers support to studies confirming the interlinks between grit, buoyancy and self-efficacy in the context of EFL learners (Yang et al., 2022). Yang et al. (2022) explain that buoyancy and self-efficacy are ‘antecedents’ of L2 grit after surveying 824 L2 learners from China and Iran. This suggests that grit, buoyancy and self-efficacy are jointly critical in helping learners persist through obstacles. This is consistent with research showing that the contribution of grit to academic achievements can clearly be captured when mediated by psychological resources such as self-efficacy, hope, resilience and optimism (Luthans et al., 2019). This finding of differences between the High grit clusters vis-à-vis the writing Strugglers and Efficacy Stragglers reinforces past research that underscores the significant role of grit in predicting L2 overall language achievements in general (Sudina & Plonsky, 2021; Teimouri et al., 2020) and learner achievements particularly in the domain of L2 writing (Shafiee Rad & Jafarpour, 2023; Zhang, 2023; Zhang & Zhang, 2023). The result of the regression analysis verified the unique contribution of grit over and above buoyancy and self-efficacy to variance in learners’ global writing scores. This finding echoed prior research conducted in a western setting among ethnically diverse undergraduates, demonstrating grit as a stronger predictor of academic achievement above and beyond academic buoyancy (Fong & Kim, 2019). Nonetheless, no similar evidence has yet been documented in previous L2 research. Importantly, the finding of the distinctive role of

perseverance of effort in predicting L2 writing achievement sheds light on this component of grit, responding to the literature's call to examine this component solely, rather than as an aggregated component (Credé & Tynan, 2021). The role of perseverance of effort was also emphasised in the interview as participants belonging to the High and Low clusters emphasised persistence in relation to trying and striving. Yet, the High grit profiles appeared to adjust their effort at varying levels as demonstrated from the stimulated recalls findings. That said, it seems that participants tend to strongly conceptualise persistence to the use of strategies to overcome challenges, adding further complexities to this multidimensional system. These findings may provide additional support to the Strategic Self-regulation Model (S²R) (Oxford, 2017). According to this model, L2 learner's strength factors such as resilience, self-efficacy, autonomy, and agency are linked to learners' self-regulation and utilisation of learning strategies. In her S²R model, Oxford (2017) presented the term metastrategies to depict the wide range of strategies that L2 learners may deploy to regulate their learning and adapt to their evolving and different learning needs.

Through adopting the academic grit scale that focused individually on the perseverance of effort dimension, the study uniquely addresses existing methodological gaps that rely on combining the scores of perseverance and passion components of grit while advancing the understanding of academic persistence and its related constructs. While a small number of research concluded that consistency of interest component of grit was a stronger predictor of foreign language (FL) achievements than persistence of effort (Sudina & Plonsky, 2021), this study uniquely showed that perseverance of effort was a significant predictor even when examined separately from the consistency of interest, particularly in relation to writing achievements. Although buoyancy and self-efficacy were independently non-significant predictors of variance in the writing scores of the study sample, they may indirectly influence the relation between grit and writing scores. The effect of grit on academic performance via elements of psychological capital such as self-efficacy and resilience was also emphasised in the literature (Luthans et al., 2019). In the current study, distinctions among the identified High grit clusters in relation to

writing scores became more explicit through self-efficacy and buoyancy. Studies investigating the associations between grit and academic achievements in English non-native contexts through cluster analysis procedures corroborated the findings of differences between the High and Low grit clusters. For example, learners with high grit profiles were found to have higher L2 achievement grades (Dehkordi et al., 2021) and reduced levels of text anxiety (Datu & Fong, 2018a) than learners with Low grit profiles. The consistency between the findings of this study and the existing literature provided compelling evidence that learner profiles of grit, buoyancy and self-efficacy are likely to impact learners' overall L2 achievements and achievement in a specific language domain such as writing in this study.

The lack of notable links between learners' levels of grit, buoyancy, and self-efficacy and their performance in WM tasks added additional layers of complexity, especially to the cognitive-affective structure underlying grit proposed in the literature (Armstrong et al., 2018; Schimschal et al., 2021). This finding of no correlations could be attributed to the use of L2 rather than L1 WM tests. This is because L2 WM tests are often influenced by L2 learners' proficiency levels (Li, 2023). The finding may also have resulted from the scoring procedures of the WM tasks and the use of a global WM index (Li, 2023). Considering WM and grit, previous studies reported inconsistent findings. For example, Zhang and Zhang (2023) reported effects of working memory and grit perseverance of effort component on performance in L2 writing complex tasks while Aguerre et al., (2022) found no links between grit and WM during performance in working memory tasks. This discrepancy in the literature may arise from the different aspects of WM that these studies assessed. While Zhang and Zhang (2023) examined WM capacity in relation to retaining and recalling information using Operation Span (OSPAN), Aguerre et al., (2022) investigated WM dual and executive functions to assess WM capacity, cognitive inhibition and flexibility through OSPAN, cued-switching, and Conflict tasks.

As for the possible impacts of buoyancy and self-efficacy on WM performance, no studies explicitly studied the links between these constructs and WM performance. Nonetheless, Putwain et al. (2023) suggested promising links between buoyancy, self-efficacy and WM. They

highlighted that in anxiety-inducing situations such as exams, learners need self-regulation strategies and positive self-beliefs to bounce back quickly and mitigate the impact of anxiety on WM performance. This suggests the importance of utilising interventions in the study of the effects of grit, buoyancy, and self-efficacy on academic and WM performance. More specifically, developing interventions that can improve learners' WM dual and executive functions such as engaging in problem-solving tasks together with emotion-regulation strategies and growth mindset may better reveal how grit, buoyancy and self-efficacy contribute to performance in academic and WM tasks. While the findings of no associations in this study may suggest that grit, buoyancy and self-efficacy are less likely to interfere in learners' WM functions, future studies are needed to explore this further, using interventional designs.

6.2.3 Key Findings for RQ4: learners' perceptions of academic persistence, their experiences of academic persistence, and their self-efficacy based on their profiles of grit, buoyancy and self-efficacy.

The findings of the semi-structured and stimulated recall interviews suggest that Saudi female undergraduates connected academic persistence in writing with concepts relevant to grit and buoyancy. This finding reinforces the findings of previous research that recognises buoyancy as a key conceptual correlate to grit (Sudina & Plonsky, 2021). It corresponds with recent evidence that highlights short-term resilience as a catalyst for understanding how grit influences academic performance (Luthans et al., 2019). Overall, the interviews revealed that participants perceived academic persistence in relation to persistent effort, striving, determination, and overcoming challenges in any way. While members of the identified clusters generally shared similar views about academic persistence, there were slight nuances in their views. More specifically, members of the High grit clusters discussed concepts such as continuous effort to achieve long term goals, including skill development and good grades, commitment to requirements, self-reliance, and identification of weaknesses while those belonging to the Low cluster described persistence mainly in terms of effort and trying to overcome linguistic

deficiencies. The findings imply that learner clustering profile may impact their understanding of academic persistence in writing as members belonging to the High clusters expressed more diverse understandings compared to the restricted understandings of participants in the Low cluster. Specifically, many members of the High grit clusters viewed academic persistence in relation to commitment to development and manifested strategies that highlighted this such as improving their writing through reading, learning new words, and using checklists. In contrast, the Low grit cluster appeared to relate persistence primarily to trying to overcome linguistic deficiencies, hence the strategies that they employed were mostly in relation to grammar and translation of words.

Although qualitative measures are underrepresented to a great extent in literature on grit, buoyancy and self-efficacy, students' perceptions of academic persistence mirrored the perceptions of the Filipino undergraduate student sample in other studies (Datu et al., 2016). Datu et al. (2016) found that participants considered determination, readiness for failure, flexibility of plans, focus, maintaining relationships with others as markers of learners' persistence in overcoming challenges and achieving long-term goals. Unlike the Filipino undergraduate sample, participants in this study did not talk about consistency of interest despite being asked implicitly about grit and buoyancy. In addition, while the sample in Datu's et al., (2016) study perceived adaptability in relation to modifying plans, maintaining relationships with others through being helpful to others, and being humble, for participants in this study adaptability was in relation to employing adaptive strategies, adjusting inclinations and seeking help rather than offering help. This became obvious when participants asked to reflect on their experiences of persistence in writing. Several plausible explanations could be attributed to the inconsistencies in the findings. The disparity may stem from differences in the area of focus and the characteristics of the sample cohorts. Datu et al., (2016) recruited participants from different undergraduate levels, including males and females. They did not ask participants to describe a specific academic persistent experience, rather they investigated participants' overall life experiences in overcoming setbacks to achieve long-term goals.

Participants in the current study, however, were first-year female undergraduates, and they were asked to reflect on their academic persistent experiences in addressing writing challenges while at the same time were stimulated by a shared Cloze experience. Furthermore, the aim of Datu's et al., (2016) study was mainly to conceptualise the structure of grit while this study sought to identify learners' profiles of grit, buoyancy and self-efficacy based on their writing achievement outcomes and unravel their understandings and experiences of thereof. It seems that almost all the participants in this study perceived adaptability in terms of adaptive coping to navigate immediate challenges as demonstrated in the stimulated recalls. In the context of L2 writing, academic buoyancy is key in promoting the use of self-regulated writing strategies among Chinese university students (Wang & Xu, 2023). While some participants explicitly mentioned striving to achieve long term goals such as good grades, the majority of the High grit participants highlighted seeking help and their self-directed approaches to overcome challenges, including paying attention to the instructor's preferences, using the checklists in the course book, and translation. The finding confirms previous research that states resourcefulness as a key contributor to grit (Jehanghir, Ishaq, & Akbar, 2023). In addition, it closely ties to research that considers help-seeking as crucial to grit (Credé et al., 2017; Luthans et al., 2019). Credé et al. (2017) noted that high grit may become dysfunctional if it hinders individuals from seeking help. The importance of help-seeking in promoting grit and performance relations may become evident in this study through members belonging to the Writing Struggles and Efficacy Stragglers. Ruby, for example, declared that she relied on translation to overcome challenges. When she could not seek help in the Cloze test, she did not perform well, rather she sought to quickly copy the main text. Rema, however, she revealed that sometimes she would seek help from her friends. Her performance in the Cloze test, in fact, was not significantly different from members of the High grit clusters. The finding suggests that the achievement context, namely achievement in writing, can impact learners' levels of grit during performance. Situational contexts such as in the domains of sport or school can alter grit levels (Cormier, Dunn, & Causgrove Dunn, 2019). The finding further implies that grit alone is insufficient to enhance academic performance. Therefore, grit paired with buoyancy and other

psychological resources are necessary to understand L2 grit and academic performance relationships. All in all, the findings of this study support the associations between components of L2 academic persistence and overcoming writing challenges. Findings from the psychological resources literature, especially grit, suggest that academic resilience coupled with self-efficacy are necessary to unpack grit-performance relationships (Luthans et al., 2019).

6.3 Limitations of the Study

Although the study provided insights into L2 grit, buoyancy and self-efficacy in the domain of L2 writing within the Saudi context, the study has certain limitations that may affect the interpretation of the results. These include conceptual, methodological and analytical limitations. First, the study was limited to the investigation of grit, buoyancy and self-efficacy in the domain of L2 writing. It thus may not account for other aspects of learner's psychological resources, neither did it provide information about learner's persistent experience in terms of overall L2 performance nor performance in other specific L2 domains. In addition, the study capitalised on the perseverance of effort component of grit, theorising grit perhaps as a unidimensional construct. While the aim of the study was to profile and understand the idiosyncrasies of first-year Saudi female learners enrolled in a mandatory writing course from a relatively large sample size, it was not possible to achieve this through a convenience sampling procedure from a single setting. The restricted sample size of 60 participants posed a limitation that may affect the generalisability of the findings. Specifically, the study employed a cluster analysis approach, which ideally requires a larger sample size to yield more robust clustering results (Plonsky, 2015), restricting the extent to which the results can be generalised beyond the study sample. However, it should be noted that the study applied different cluster methods, including Ward's hierarchical and K-means clustering methods to the same dataset at both three-level and four-level cluster solutions. Different observational measures such as observing students' performance during classroom over time or during performance in writing tasks and

recruiting participants from multiple settings could have yielded a larger sample size and thoroughly captured nuances and changes in learner's academic persistence.

Furthermore, the research instruments employed in the study and the data collection procedures are not without limitations. The different phases of the research may perhaps have deterred some participants, leading to a small sample size. In addition, the data was collected from the participants over a single semester. Therefore, while the findings of this research are unlikely to be generalised to all first-year Saudi female undergraduates, they revealed some aspects about the sampled population that can inform writing instructors and writing pedagogy in universities in Saudi. The study utilised triangulation of research instruments to address these limitations. Triangulation of data such as collecting data from multiple settings, recruiting males and females could have potentially provided a more comparable and comprehensive findings about the population under study. Another limitation was relevant to the use of the Cloze test. Specifically, the test was adapted from academic writing reference books designed for ESL learners with an intermediate English proficiency level. It was deemed reliable, closely relevant to the study participants' levels of English, but was not piloted. This was due to time constraints and the change of the research direction from employing eye-tracking methods to administering the test. Several measures were taken to address this, including utilising stimulated recall interviews to prompt participants, adopting a well-established scoring rubric and rigorously assessing the inter-rater reliability. The administration of the WM task online was also problematic. It is possible that participants' computer skills and the imposed time restriction may have introduced bias into their responses. Finally, my role as the researcher and interviewer together with the translation of the interviews may have directed the interpretations of the findings in particular directions. Despite these limitations, care was taken to constantly reflect on my positionality and check the transcriptions with participants to ensure the trustworthiness of the findings. While the study incorporated data from multiple instruments, the nature of the gathered data remained largely limited to one-off self-reported methods. Collecting data repeatedly over extended periods of time may have resulted in a more comprehensible understanding of learner's grit, buoyancy and self-efficacy in writing.

6.4 Theoretical, Pedagogical and Empirical Implications

The results of this study offer several theoretical, pedagogical and empirical implications for enhancing the understanding L2 writing persistence within the Saudi context. At a theoretical level, the results of distinct learner profiles of grit, buoyancy and self-efficacy based on writing scores may emphasise theories that conceptualise academic persistence as a multi-dimensional construct. Specifically, learners appear to conceptualise academic persistence as a combination of perseverance of effort, the ability to deal with writing challenges, and self-perceptions, particularly regarding confidence. These findings suggest that models such as the Motivational Wheel (Martin, 2002) and the PsyCap (Luthans et al., 2007) may provide a strong theoretical foundation for studying persistence in the field of L2 writing, which remains understudied (Shafiee Rad & Jafarpour, 2023; Xu & Wang, 2023). This is because the Motivational Wheel (Martin, 2002) and the PsyCap (Luthans et al., 2007) models have been widely used to look at the relationship between academic persistence and general achievement outcomes (Li, Che Hassan, & Saharuddin, 2023; Martin, 2023). According to these models, internal factors such as self-efficacy and resilience are processes that can be enhanced and developed (Abdolrezapour et al., 2023; Li et al., 2023; Safriani & Muhid, 2022). It is evident from the results of this study that both the PsyCap and Motivational Wheel can be useful to uncover how persistence and its relevant constructs may impact writing achievement outcomes.

By espousing the PsyCap lens and elements of the Motivational Wheel in investigating how grit, buoyancy and self-efficacy can possibly influence writing performance, the study has the potential to support the cognitive-affective perspective highlighted in academic persistence research (Chu et al., 2024; Luthans, Luthans, & Chaffin, 2019). Specifically, the findings that participants attributed their persistence in writing to cognitive and metacognitive learning strategies imply that the use of learning strategies facilitated learners' experiences of persistence. Such findings suggest that it might be worthwhile to consider grit and buoyancy as flexible constructs. This was evidenced in the transformation of stable traits into malleable cognitive processes, including strategies for coping and regulation. The cognitive-affective links

were further illustrated in the findings of the positive fluctuation of self-efficacy among members of Gritty Strivers but Help-seekers and Self-doubters. It seems that when self-efficacy beliefs are limited, grit may become dysfunctional as illustrated by members of the Writing Strugglers and Efficacy Stragglers.

As for pedagogy, the results of this study could also provide insights into the teaching of English academic writing at universities in Saudi Arabia. As discussed earlier in Chapter 1, existing literature has consistently drawn attention to the low levels of writing proficiency among Saudi undergraduate students (Alharbi, 2019; Gaffas, 2019) as well as the poor attendance rates, especially in writing courses (Alkodimi & Al-Ahdal, 2021). Thus, the results of this study could be of benefits to writing instructors, highlighting that Saudi undergraduate students often face not only linguistic challenges in L2 writing but also may experience psychological challenges, which may affect their persistence in writing classes. In particular, the results regarding the potential links between learners' profiles of grit, buoyancy, and self-efficacy and their writing scores suggest that L2 writing teachers should consider these profiles to improve writing instruction at universities in Saudi, especially for students with limited L2 proficiency. By recognising learners' profiles of grit, buoyancy, and self-efficacy, teachers can employ various instructional approaches tailored to learners' profiles to support their writing skills as they transition to university. For example, students with low profiles of grit, buoyancy and self-efficacy may benefit more from teachers' structured support and explicit instruction of strategies that may help them in navigating writing challenges and regulate their learning. The findings of the interviews revealed that members of the low clusters felt lost and uncertain when instant feedback was absent. These findings confirm, to some degree, the important role of teachers' support and feedback in shaping students' persistence and confidence.

The findings about learner archetypes and students' experiences of persistence using language learning strategies suggest that explicit strategy-based instruction has the potential to shape learners' academic persistence in writing. The significance of strategy-based instruction in enhancing EFL self-efficacy and promoting their autonomy has also been emphasised in the

literature (Chinpakdee & Gu, 2021). This, in turn, suggests that interventions focusing on strategy instruction and developing learners' confidence may foster Saudi learners' academic persistence and how they navigate challenges in writing. Therefore, L2 language teachers and writing instructors are encouraged to promote active strategy use and optimise learners' confidence, especially in tackling writing tasks. The findings may contribute to Oxford's (2017) recognition of learner strength factors, especially resilience and self-efficacy as the 'soul of learning strategies' (p.65). As this study revealed, it is important to cultivate learners' PsyCap to promote their persistence in writing. Writing instructors, for instance, could facilitate writing collaboration between members belonging to different clusters, allowing them to learn from each other. The findings that, regardless of their profiles, students highlighted the importance of writing persistence in relation to sustained effort, determination, and the ability to overcome challenges may underscore the need to incorporate academic persistence and aspects of optimal functioning into teacher training programmes. By doing so, language teachers can become more aware of how to effectively support their students early as they enter university.

In addition to the theoretical and pedagogical implications, this study offers valuable empirical implications to the growing body of literature on persistence in L2 writing. The use of cluster analysis provided empirical support to the literature's call (Maaliw et al., 2022; Martin & Marsh, 2009) to incorporate a person-centred approach in the study academic persistence, moving beyond traditional variable-centred methods. The findings of this study also tend to expand grit research by the investigation of the perseverance of effort dimension, challenging the existing understanding of grit as an aggregated construct. According to Credé and Tynan (2021) the aggregation of grit facets into a single unitary variable in SLA research is questionable. Most notably, the integrative approach which this study employed to investigate conceptually relevant concepts could address the definitional ambiguities in the literature. The results of significant relationships between students' profiles of grit, buoyancy and self-efficacy and their writing scores suggest that L2 researchers should consider looking at the impact of grit, buoyancy and self-efficacy on other language skills.

Finally, the null findings of significant correlations between learners' levels of grit, buoyancy, and self-efficacy and their performance in WM tasks suggest that WM tasks alone may not reveal how grit, buoyancy and self-efficacy contribute to academic performance. While the findings of no significant relationships in this study may suggest that grit, buoyancy and self-efficacy are less likely to interfere in learners' WM functions, future studies are needed to confirm and explore this further, using interventional and longitudinal designs with a larger sample size. The findings imply that it is necessary for language teachers to help students use learning strategies actively before targeting their WM capacities. Significant links could have potentially been noticed in instructional experiments that test the mediation effects of strategy instruction on L2 academic persistence, achievement and WM executive functions, focusing particularly on cognitive functions among the identified profiles. Overall, the results of this study offer valuable pedagogical, theoretical, and empirical implications for advancing the understanding and investigation of persistence in L2 writing within the Saudi context.

6.5 Recommendations and Future Research Directions

To corroborate the findings of this research and address the limitations identified above, future studies are recommended to advance the understanding of the impact of grit, buoyancy and self-efficacy on L2 achievement outcomes. In particular, future research needs to replicate this study with a larger sample size and across several settings, expanding the sample cohort to include both male and female first year undergraduates. This will likely allow researchers to compare learner profiles based on gender differences if any exist. Moreover, this study found that learners' personal accounts of past experiences of persistence facilitated the understanding of how they perceived and experienced academic persistence in dealing with difficulties. Future studies based on longitudinal and experimental evidence that involves narrative and phenomenological research approaches, direct observations and manipulations over time are often more accurate in tracking developments and fluctuations of grit, buoyancy and self-efficacy among learners. This will more likely allow researchers to draw more robust

and valid conclusions. One possible way is through technological devices both relatively intrusive and non-intrusive ones to observe and record changes in learners' brain activities, eye movements, facial expressions, or stress levels while they encounter challenging L2 learning tasks. This may well elucidate the cognitive-affective dimension of academic persistence— also conceptualised as the trait-process component—, while simultaneously provide insights into the potential interplay between cognitive control and psychological functioning in L2 learning.

Building on the findings of the significant correlations between grit, buoyancy and self-efficacy and writing scores, future studies are encouraged to examine grit, buoyancy and self-efficacy in relation to other language domains such as reading. To provide conceptual clarity of the definition and structure of grit, future studies are encouraged to study the impact of consistency of interest on L2 learning. Moreover, the impact of other character strengths on L2 learning and achievement outcomes requires further exploration. Future research may examine the impact of explicit character strengths teaching on L2 learning. Finally, several participants ascribed their persistence to challenges arising from the teaching of writing and the role of writing instructors. Future research is therefore needed to investigate the impact of student-teacher relationship on learner's grit, buoyancy and self-efficacy. Understanding the role of language teacher's grit and buoyancy and its impact on language teaching has yet to be explored.

Exploring this by adopting an emotion regulation framework, especially among novice teachers, may yield useful insights about the role of emotion regulation and persistence. Integrating concepts relevant to character strengths and character education into language teacher training programmes can perhaps aid teachers to profile their students according to their personality archetypes and customise learning activities effectively in line with the identified profiles. The design of teacher development programmes pertaining learner character strengths such as persistence is left for future research to discover.

6.6 Contributions to Knowledge

The current study aimed to examine conceptually relevant concepts often used in the study of persistence in language learning. Specifically, the study sought to identify potential learner profiles of grit, buoyancy and self-efficacy and investigate to what extent, if any, the identified profiles would have an impact on learners' writing scores and their WM functions. The study also explored how the identified clusters would define academic persistence and its related constructs. It further uncovered to what extent, if any, learners' perceptions and experiences of academic persistence could shape their persistence in writing. The following section highlights the key contributions of this study.

The current study offers a more comprehensive model of persistence in L2 writing, theorising persistence as a composite of grit, buoyancy, and self-efficacy. This is in line with the conceptions of the Motivational Wheel (Martin, 2002) and the PsyCap (Luthans et al., 2007), both of which emphasise persistence as an interrelated system. The multidimensional approach that integrates elements of the PsyCap and the Motivational Wheel may offer a more holistic understanding of how academic persistence and its related constructs operate in the context of L2 writing. This may also contribute to a definitional clarity of persistence-related constructs since previous research has almost treated them in isolation, often leading to an inconsistent operationalisation and measurement of these constructs (Teimouri et al., 2020; Yun et al., 2018). The study further offered new directions to the investigation of grit by uniquely investigating the perseverance of effort component that has widely been reported as a stronger predictor of L2 achievement than consistency of interest (Credé et al., 2017). In doing so, the study provided unique theoretical contributions by approaching conceptually relevant constructs that have rarely been studied together within an EFL context, focusing on the domain of writing.

Unlike previous research examining grit, buoyancy and self-efficacy as predictors of overall L2 achievements, this study presented a shift from a variable-based inquiry that tests relationships

and associations to investigating the constructs under study following a profile-based approach through cluster analysis. By examining learner characteristics of grit, buoyancy and self-efficacy through cluster analysis, the study revealed insights into learners' inherent attributes that influence L2 performance, contributing valuable insights to the field (Plonsky, 2015). The profile-based approach could help to further develop interventions that could be customised according to learner profiles (Maaliw et al., 2022). The results of the cluster analysis have revealed distinct learner profiles of grit, buoyancy and self-efficacy and significant mean differences, especially between the low and high clusters at both three and four cluster solutions based on their writing scores. These results support previous studies that reported links between academic persistence and writing achievement among ESL college students, especially perseverance of effort component of grit (Zhang, 2023; Zhang & Zhang, 2023) and buoyancy (Wang & Xu, 2023). The results suggest that a deeper understanding of the academic persistence profiles of Saudi first-year learners can shed light on the characteristics of this cohort, often labelled as 'lagging' in their writing skills (Alghammas, 2020). Therefore, the results of this study contribute to contextualising academic persistence, offering novel insights from the Saudi context. By focusing specifically on L2 writing persistence through a profile-based approach, the results could contribute to a rich understanding of the domain specificity of grit, buoyancy and self-efficacy while uncovering the unique characteristics of the Saudi sample under study.

Moreover, the findings of the interviews demonstrated that Saudi female undergraduates connected academic persistence in writing with concepts relevant to grit and buoyancy, particularly in relation to persistent effort, striving, determination, and overcoming challenges in any way. These findings support previous research that recognises buoyancy as a key conceptual correlate to grit (Duckworth et al., 2007; Sudina & Plonsky, 2021). As evident from the semi-structured interviews, members of the identified clusters, regardless of their clustering profiles, apparently shared similar views about academic persistence. This indicates that members of the clusters seem to perceive grit and buoyancy as conceptually grounded in the notion of persistence. The alignments in learners' perceptions suggest that concentrating solely

on grit or buoyancy may fail to fully capture the complexities of academic persistence in L2 writing, especially within the Saudi context, where L2 writing among undergraduates is a national concern (Alkodimi & Al-Ahdal, 2021). The findings of the interviews also showed that participants with low levels of grit, buoyancy and self-efficacy profiles tended to perceive persistence mostly in terms of effort and trying compared to those with high levels of grit and were either high or limited in buoyancy and self-efficacy. This distinction seems to be in line with their identified profiles from the cluster results, contributing to a nuanced understanding of how learner belonging to different profiles may interpret academic persistence. In addition, the interviews revealed that across all the four identified profiles, participants attributed their persistence in writing to the adaptive strategies they employed. However, the ways in which participants applied these strategies varied considerably according to their clustering profiles. Specifically, learners with lower grit, buoyancy, and self-efficacy profiles mostly employed strategies to overcome linguistic deficiencies in relation to grammar and translation of words. In contrast, those with higher grit profiles adopted various strategies, including reading to improve their writing, expanding their vocabulary, and using checklists to monitor progress. These findings suggest the potential role of learners' profiles in shaping not only their persistence but also the strategies they employ. Additionally, the findings are consistent with previous research that established associations between L2 learners' levels of resilience and resourcefulness (Alahmari & Alrabai, 2024; Jehanghir, Ishaq, & Akbar, 2023).

Similar findings emerged from the stimulated recall interviews. Specifically, members of the low grit clusters demonstrated limited effort when completing the Cloze test, reflecting their struggles with language. In contrast, individuals in the high grit clusters consistently adapted their behaviours to navigate the test effectively. The stimulated recall findings revealed a performance disparity among members of a homogeneous cluster. Notably, those in the high grit, moderate buoyancy, and self-efficacy cluster exhibited varying levels of effort: one participant consistently persevered to complete all sections of the Cloze test, while another struggled to maintain effort despite average confidence.

The insights gained from the stimulated recalls, coupled with the semi-structured interviews, offered a richer and more contextual understanding of learners' profiles and their experiences of persistence in writing within the Saudi context. Both types of interviews were instrumental in comprehensively unpacking the similarities and differences within and across the identified clusters. Thus, one significant contribution of this study was the use of a mixed-methods research design that goes beyond self-reports and predetermined scale limits. The quantitative portion demonstrated how unique clusters of grit, buoyancy, and self-efficacy are linked to writing performance and persistence in the face of challenges. It provided insights into the individual contributions of these factors to participants' writing scores. The retrospective evidence enhanced the understanding of the characteristics of the identified profiles. Consequently, this study offered novel insights into L2 grit, buoyancy, and self-efficacy research that extend beyond quantitative cross-sectional self-reports.

In conclusion, this study provided a comprehensive understanding of L2 writing persistence among Saudi female first-year undergraduates through a mixed-methods approach. The cluster analysis identified four learner profiles of grit, buoyancy and self-efficacy—labelled based on their characteristics of these variables, consisting of high or low across all variables, high in grit but low in other variables, and high in grit but relatively moderate across the other variables. Significant differences in writing scores were found between high and low grit clusters, though no differences were observed in their performance on WM tasks. By grounding the investigation in the Motivational Wheel and Psychological Capital (PsyCap), the study has the potential to offer theoretical and empirical insights into L2 writing persistence in Saudi higher education. Qualitative findings suggested that grit and buoyancy could enhance writing performance by promoting effective learning strategies and self-efficacy beliefs. Understanding these characteristics could help L2 teachers tailor instruction beyond grammar and structure to meet learners' unique characteristics. This study also provides directions for future research to explore the connections between persistence and L2 performance, as well as the potential role

of resilience in improving outcomes through targeted interventions. Ultimately, this research lays the groundwork for understanding learner characteristics in L2 writing, highlighting the significance of context in academic persistence. The results of the study yielded original insights into L2 writing in Saudi Arabia by identifying learner profiles of grit, buoyancy, and self-efficacy among Saudi learners in English academic writing, while emphasising the critical role of context and language domain in understanding academic persistence.

Appendix A Questionnaire



My name is Rehab Alowayid as part of my PhD project **I am inviting you to participate in a study regarding academic persistence that tests relationships among learners' sustained effort with respect to navigating challenges to achieve long-term success (grit), effort at a specific time or to overcome everyday challenges (buoyancy), self-efficacy and writing course grades.** The study also uncovers what writing persistence means for you and the factors that may affect your motivation and persistence in the writing course. This study was approved by the Faculty Research Ethics Committee (FREC) at the University of Southampton (Ethics/ERGO Number: 76045) **If you are happy to complete this survey, you will need to sign in the box below to show your consent and that you agree to take part in this research project.** You will also be invited to participate in a Cloze test, working memory (WM) task, and interviews. The questions in this survey ask you to complete demographic information including your university ID number. It further asks you to evaluate your persistence and effort in relation to dealing with academic writing challenges. The survey focuses on how you

deal with everyday writing problems and the effort you make to achieve your long- and short-term goals, and how confident you feel about your writing competence, your ability to manage the process of writing in any writing task assigned to you (self-regulation), and your writing performance. Only information that is relevant to these aspects will be collected for carrying out this study. Your participation is voluntary, and you may withdraw at any time without your participation rights being affected. As this survey is anonymous, any possible identifying personal data will not be disclosed to your teachers or the university or shared in the research. ***Please answer the questions as honestly as possible because there are no right or wrong answers. The survey should not take more than 30 minutes to complete.*** Your responses and all personal information you provide during the study will remain confidential and will be completely anonymous. If you have any further questions about the survey, please contact the researcher at: r.h.alowayid@soton.ac.uk

Thank you for your participation

أدعوك إلى المشاركة في هذا البحث كجزء من مشروع بحثي لدراسة كيفية التعامل مع الكتابة في الحياة اليومية. هذا البحث يهدف إلى دراسة العوامل النفسية لمستخدمي الكمبيوتر في الكتابة اليومية وعوامل ما يخص الكتابة الإلكترونية في ذلك. لم يهدف هذا البحث إلى تحقيق أهداف طويلة الأجل أو إلى اختبار فرضيات أو إلى إجراء بحث في مجال معين. المعلومات التي ستقدمها ستكون سرية وستستخدم فقط لأغراض البحث. يمكنك الانسحاب من المشاركة في أي وقت دون أن يؤثر ذلك على حقوقك. إذا كنت بحاجة إلى مزيد من المعلومات، يرجى الاتصال بالباحث في: r.h.alowayid@soton.ac.uk

تمت الموافقة على هذه الدراسة من قبل لجنة أخلاقيات البحث العلمي

(FREC) رقم (ERGO: 76045)

ليرجى إبداء لرغب قبل مشاركة في هذا التقييم ان يرد التقييم في لوبع إننا حاليست غرق للمشارك في هذا

إل سياب لن أكثر من 30 يوم

لنمب أن جيع إل سجلات أو للمعلومات الشخصية التي يتم مشاركتها في هذا الاستبيان سوف يتم التعامل مع ملبس في فوسيتون مجولة
 لا هي قداماً لن يتم نشر أو مشاركة أي معلومات شخصية مع ج امعك إسبادة لمادة، ولن يتم نشر رأي مجلوماتش خيري في هذا
 البحث الجلك إل طلال على ملض الدراسة وعلو من المشاركة الموفق أفاه كم إذا رغبتى طرح أي أسئلة أخرى حول هذا
 الاستبيان أو هذه الدراسة فتبكل عام مي جى التوصل مع الباشة هو العول الطلي

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شكر آل من ارتكك

Part One: *Demographic information***What is your University ID?**

.....

What is your level?

.....

What is your section number?

.....

Please provide your email address, if you wish to participate in an interview in Arabic or English either online or in person, as you prefer, otherwise write 0.

.....

Part Two: *Each statement below asks you to evaluate your persistence and effort in relation to writing. Remember there are no right or wrong answers, so please be honest.*

#	Question	Responses				
		<i>Not at all like me</i>	<i>Not much like me</i>	<i>Somewhat like me</i>	<i>Mostly like me</i>	<i>Very much like me</i>
1	I push myself to do my personal best in the writing course	1	2	3	4	5
2	I work toward my academic goals no matter how long they take to reach	1	2	3	4	5

Appendix A

3	Even when I could do something more fun, I give the writing course my best effort	1	2	3	4	5
4	I complete any writing task no matter how difficult it is.	1	2	3	4	5
5	I am determined to give my best effort in the writing course	1	2	3	4	5
6	In the writing course, once I set a goal, I try to overcome any challenges that arise	1	2	3	4	5
7	I am able to balance working hard in the writing course with my work in the other courses that I am taking	1	2	3	4	5
8	Even if I am struggling in the writing course, I keep trying my best	1	2	3	4	5

Part Three: *The following items invite you to evaluate the way you deal with everyday writing challenges. Again, there are no right or wrong answers, so please be honest.*

Question	
9. I'm good at dealing with writing setbacks (e.g., bad mark, negative feedback on my writing assignments)	☐ Not at all like me ☐ Not much like me ☐ Somewhat like me ☐ Mostly like me ☐ Very much like me
10. I don't let stress about my writing get on top of me (e.g., stress about completing a writing task and deadline pressures)	☐ Not at all like me ☐ Not much like me ☐ Somewhat like me ☐ Mostly like me ☐ Very much like me
11. I think I'm good at dealing with writing problems (e.g., problems relating to grammar, the use of wrong words, spelling mistakes, and punctuation marks)	☐ Not at all like me ☐ Not much like me ☐ Somewhat like me ☐ Mostly like me ☐ Very much like me
12. I don't let a bad mark on my writing assignments or poor writing test score affect my confidence in my writing.	☐ Not at all like me ☐ Not much like me ☐ Somewhat like me ☐ Mostly like me

	☐ Very much like me
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Part Four: *The following items invite you to evaluate how confident do you feel in your writing competence, your ability to manage the process of writing in any writing task assigned to you (self-regulation), and your writing performance. There are no right or wrong answers, so please be honest.*

Writing Competence	Not at all true for me	Sometimes true for me	Quite True for me	True for me	Very true for me
13. I can correctly use parts of speech (e.g., nouns, verbs, adjectives) in writing.					
14. I can write a simple sentence with grammatical structure					
15. I can write compound and complex sentences with grammatical structure					
16. I can write a composition with a clear organisation or structure.					
17. I can revise wordy or confusing sentences of my writing.					

Appendix A

18. I can revise my composition to make it better organized.					
19. I can revise basic grammar errors in my writing.					

Writing Self-regulation	Not at all true for me	Sometimes true for me	Quite True for me	True for me	Very true for me
20. I can recognise my goal to improve my writing.					
21. I can think of my goals before writing.					
22. I can think of different ways to help me to plan before writing.					
23. I can evaluate whether I achieve my goal in writing.					
24. I can evaluate my strength and weakness in writing.					
25. I can evaluate whether a composition is good or bad.					

Writing Performance	Not at all true for me	Sometimes true for me	Quite True for me	True for me	Very true for me
26. I can understand the most difficult material presented in writing courses.					
27. I can understand the basic concepts taught in writing courses.					
28. I can understand the most complex material presented by the instructor of writing courses.					
29. I can do an excellent job on the assignments in writing courses.					
30. I can master the writing knowledge and strategies being taught in writing courses.					
31. I can use the writing knowledge and strategies being taught in writing courses.					
32. Considering the difficulty of the writing course, the teacher, and my skill, I can perform well in writing courses.					

Thank you very much for your time in responding to this survey!

Appendix B Cloze Test

Rational Cloze test

- 1) Read the texts below carefully and fill in the blanks with the appropriate cohesive device from the options in parentheses that can best fit the meaning.

- a) Clothing store owners who understand the differences between male and female shoppers can use this knowledge to design their stores effectively. Female customers use their five senses when they shop.
(*Therefore, **For example**, In addition, On the other hand*) women want to touch and feel fabrics and see themselves in clothes.
(***Because of**, Furthermore, As a result, In contrast*) women's shopping style, owners of women's clothing stores place the latest fashions and clothes with luxury fabrics near the entrance. (*Even though, **Furthermore**, However, In summary*) they put items near one another to allow women to visualize how several items will look together as an outfit. They also group clothes not by item type but by style—classic or casual, for instance. Most men, (*consequently, **on the other hand**, in addition, even though*) go shopping out of necessity. They buy clothes only when they have

to. Men get a pair of jeans because their old ones have worn out. They probably want to buy exactly the same type of jeans.

(However, **Moreover**, *Instead of*, *So that*) men prefer to buy at a store that has everything in its place. They like all shirts together over here and all pants together over there. This way, they can purchase what they need quickly and leave the store. You can see that men's clothing stores are arranged very differently from women's for good reason

- b) New-borns and one-year-olds are very different. (*Because of*, *Furthermore*, *As a result*, **First**,) they differ in terms of their physical development and muscle control. New-borns cannot move their bodies or control the movement of their arms and legs. Their arms are usually folded close to their bodies, and their hands are tightly closed. (*Even though*, *Moreover*, *Instead*, **By comparison**,) one-year-olds can sit and stand, and some can even walk. They use their fingers and thumbs to pick up small objects. (**Second**, *Due to*, *Because*, *In contrast*) new-borns and one-year-olds differ in terms of what they see and recognize and their attachment to caregivers. New-borns are only able to see people and things that move and that are about two feet away. They have no memories, so they do not recognize anyone, and they cannot form attachments to people. (**On the other hand**, *Accordingly*, *Moreover*, *Instead of*,) one-year-olds can see very well, and, because they can remember, they recognize people and things. They have formed attachments to their family members, especially to their mothers. (**Finally**, *As a result*,

However, Although) new-borns and one-year-olds differ in terms of their emotions and their communication with others. New-borns cry when they are uncomfortable or hungry. (As a result, Although, **In contrast**, Despite) one-year-olds whine, point, and talk when they want or need something. They smile and laugh when they recognize friendly faces and show interest in things that are new and different. They become shy when strangers appear and fearful when their mothers go away.

- 2) After completing the exercise above, write approximately *100 words*, summarising **one** of the texts. Use some of the support clues, provided below to help you.

SUMMARY CLUES

(as a result, hence, in conclusion, in short, in brief, in summary, finally, on the whole)

.....

.....

.....

.....

.....

.....

.....

.....

.....

The texts have been adopted from

Appendix B

(a) Oshima, A., Hogue, A., & Curtis, J. (2014). *Longman Academic Writing Series 3: Paragraphs to Essays* (4th ed.). Pearson Education.

(b) Fitzpatrick, M. (2011). *Engaging Writing 1: Essential Skills for Academic Writing* (2nd ed.). Pearson Education.

Appendix C Semi-structured Interview Guide

Introductory Questions

Participants will be thanked for their participation and a reminder of the purpose, aim of the study, confidentiality of the provided answers, the right to revoke participation and that there are no right, or wrong answers will be discussed. Students will be asked if they agree to be recorded and if they have any questions to raise before the interview.

Introductory questions such as the following will be asked:

Are you okay to be recorded?

Do you understand the purpose of this interview?

Do you have any questions before we start the interview?

General Questions

How do you describe your English writing skill?

Compared to the other subjects that you are taking; how do you feel about the writing course?

Are you happy with your writing score? why/why not

Questions Relating to Writing Persistence

Describe any difficulties that you have experienced in your writing course?

What did you do to respond to the difficulties, if at all? And how did you feel?

Do you think that responding to writing difficulties affect your motivation in the writing course? Why/why not

How would you define responding to writing difficulties/ writing persistence?

In your opinion, what factors can affect the way you deal with writing difficulties?

How confident are you in your writing skill?

How do you think of your teacher's feedback on your assignments? Does it affect the way you deal with challenges? how and why?

Do you think that teacher's in-class feedback affects your writing motivation? Why/why not

In what ways does your teacher's feedback respond to your writing needs, if at all?

Do you perceive your teacher's feedback relevant to your writing problems?

How does teacher's feedback in-class and on your assignments allow you to deal with your writing difficulties?

Closing Questions

What effort do you make when you face writing difficulties, if any?

Would you like to add anything to what you have already said?

Appendix D Coding Framework

Code & (sub-codes) Phase 1 <i>(holistic & priori)</i>	Definitions and descriptions (RQs prompts)	Code & (sub-codes) Phase 2	Definitions and descriptions
Confidence (general) Feelings	How do you describe your English writing skill? Compared to the other subjects that you are taking; how do you feel about the writing course?	General writing self- efficacy	References to how they feel about their writing skill
	Compared to the other subjects that you are taking; how do you feel about the writing course?		
Experience of responding to difficulties dealing with setbacks persistence	Describe any difficulties that you have experienced in your writing course?	Persistence Experience ○ dealing with linguistics challenges	learners' perceptions and experiences of academic persistence

Appendix D

dealing with criticism dealing with poor grades		○ dealing with teacher's unclear accent ○ dealing with distraction	
Approaches to persistence Adaptability maintaining relationships with others	What did you do to respond to the difficulties, if at all? And how did you feel?	○ Translation ○ Memorisation ○ Seeking help ○ Checklist ○ Friends & relatives ○ Internet search ○ Self-explanation ○ Reading ○ Grades	References to the approaches to overcome challenges
Persistence motivation hard work		'Work hard' Make effort	Persistence plays role in motivation
Do you think that responding to writing difficulties affect your motivation in the writing course? Why/why not		Same effort	Persistence may not always have role in motivation

Appendix D

Meaning of persistence Defining persistence Determination Effort Dealing with setbacks	How would you define responding to writing difficulties/ writing persistence?	Meanings & Definitions ○ Adherence and commitment ○ Self-reliance ○ desire for improvement ○ trying ○ making effort ○ readiness ○ determination ○ identifying weaknesses ○ aspiring grades	References to how persistence is perceived
General factors	In your opinion, what factors can affect the way you deal with writing difficulties?	Teacher factor Course factor University factor Self-doubt factor	Comments about factors affecting persistence
Writing confidence Confidence in competence,	How confident are you in your writing skill?	Self-confidence issues (+/-)	Comments about self-efficacy

Appendix D

confidence in performance, Self-regulatory efficacy, self-perception, control beliefs.		hesitant	
		Unsure and uncertain	
		Need someone to check	
		disappointed	
		Very confident	
		Able to write	
General experience Persistence and teacher's feedback	How do you think of your teacher's feedback on your assignments? Does it affect the way you deal with challenges? how and why?	Teacher factor (+/-)	Comments about the role of the teacher and her feedback in affecting persistence Effects of teacher's feedback
		No personalised feedback	
		Unclear/lack of comments	
		Clear and helpful feedback	
	Do you think that teacher's in-class feedback affects your writing motivation? Why/why not		

Appendix D

	In what ways does your teacher's feedback respond to your writing needs, if at all?		
	Do you perceive your teacher's feedback relevant to your writing problems? How does teacher's feedback in-class and on your assignments allow you to deal with your writing difficulties?		

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