Test Anxiety: A Comparative Study of Post-Graduate Taught Students in the UK and Saudi Arabia

Wafa Khalaf Alshammari

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School of Psychology and Neuroscience
College of Science and Engineering
University of Glasgow

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Abstract

Test anxiety (TA) is a multifaceted concept that has led to the development of numerous micro-level theories to elucidate its nature. However, only a handful have employed mid-level theories to comprehend TA in cross-cultural scenarios. This research endeavours to adapt the bioecological and biopsychosocial theories in a framework to discern the variations in TA experiences among students across different cultures and educational settings. To realize this aim, the study outlines three objectives: (i) to define, differentiate, and categorize TA, (ii) to examine the factors influencing TA, and (iii) to investigate the coping mechanisms that might mitigate the effects of TA across diverse cultural settings.

These objectives are addressed through a series of three complementary studies: a systematic review, seeking to incorporate multiple cultural perspectives and encompassing 81 papers from 2000 to 2019 based on the PRISMA method, a quantitative survey (N = 429), and qualitative interviews (N = 15). The latter two phases focused on four distinct groups, comprising local Saudi students, local British students and European and Eastern international students studying in the UK.

The research yielded several key findings. First, TA is more prevalent among all studied groups in the UK than in Saudi Arabia. Second, exosystem and mesosystem factors make the British education system more conducive to TA, while macrosystem and microsystem factors result in a more nuanced experience for Saudi and Eastern students. Third, contrary to popular belief and the existing literature, holding that coursework induces less TA than conventional examinations, this study demonstrates that the characteristics of coursework, such as the number of deadlines, uncertainty about the requirements, lack of familiarity with assessment type, perceived inability to secure full marks, and long duration of stress, can intensify TA. Responses to these factors are heavily influenced by cultural norms and students' individual backgrounds.

There is an interplay between coping mechanisms, cultural values (which might encourage procrastination), and the education system (coursework vs conventional examinations). Coping strategies vary across cultures, influenced by distinct cultural values and the education system. In addition, seeking psychological counselling for TA can be hindered by perceived barriers, namely cultural factors and lack of awareness.

The academic implications drawn from this study are twofold: (i) while bioecological/biopsychosocial theory aptly describes TA across varied cultural contexts,

it is crucial to recognize the proactive roles of individuals and the variance in cultural values, which can shape reactions and attitudes to TA; (ii) TA, coping strategies, and academic factors are intricately connected and are complex, warranting exploration from multi-level perspectives.

From a professional standpoint, this research offers several insights. First, stakeholders, including universities, employers, and the public, should reconsider the values underpinning the nexus between students' social standing, career trajectories, and their evaluations. Second, UK academic institutions should implement policies ensuring that assessments prioritize mental well-being. Third, Saudi and Eastern universities need to expand their awareness campaigns, targeting not only their student body but also families and the broader community to combat competitiveness and the culture of high expectations.

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List of Abbreviations

DAS	Depression, Anxiety and Stress
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
SA	Saudi Arabia
TA	Test Anxiety
Scales:	
AEQ	Academic Emotions Questionnaire,
CALM	Computer Anxiety and Learning Measure
CTAS	Cognitive Test Anxiety Scale
DASS	The Depression, Anxiety and Stress scale
EVAN	Evaluation Anxiety Scale
MARS	Mathematics Anxiety Rating Scale
MSLQ	Motivated Strategies for Learning Questionnaire
PEWES	Pre-examination Worry-Emotionality Scale
RTAS	Revised Test Anxiety Scale
RTT	Reaction to Test
SIM	Single Item Measure
STAS	Sarason Test anxiety Scale
STAI	State-Trait Anxiety Inventory
SACS	State Anxiety in Computing Situations
Suinn-TAQ	Suinn Test Anxiety Questionnaire
TACBSET	Questionnaire for Test Anxiety in Computer-based Spoken English Test
TAI	Test Anxiety Inventory
TAI-G	German Test Anxiety Inventory
WTAS	Westside Test Anxiety Scale.
UOG	University of Glasgow
UOH	University of Hail

Conferences

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Declaration

I, Wafa Alshammari, hereby confirm that this thesis represents my work, completed under normal supervision, and has not been presented as part of any previous application for any other academic degree.

Chapter 1. Introduction

1.1 Overview

This chapter commences by elucidating the professional motivations underpinning this study (Section 1.2.1). Subsequently, it proceeds to systematically explore the academic knowledge gap pertinent to this research (Section 1.2.2). Following this, the research context is presented in Section 1.3. The research questions, along with the aims and objectives of the study, are discussed in Section 1.4. The chapter culminates with a comprehensive outline of the methodology (Section 1.5) and the structure of this thesis (Section 1.6)

1.2 Research Motivations for the Study

1.2.1 Professional

TA is a psychological issue facing students due to their perceptions of evaluative situations (Spielberger et al., 2015; Von der Embse et al., 2018). TA not only affects students' academic performance but also has physiological impacts (e.g., heart rate, blood pressure, sweating) and cognitive effects (e.g. ability to focus and retrieve and process information) (Roos et al., 2021; Sarason, 2021). In the last decade, it has become a pervasive issue globally (Howard, 2020; Zeidner, 1998). Studies have identified that 10–35 % of students in the UK (Putwain & Daly, 2014; Putwain, 2020; Von der Embse et al., 2021) and 16–20% in the US face high levels of TA (American Test Anxieties Association, nd). It is not only evidenced in European and American academic institutes, but also in the Middle East, Africa and Asia, with levels of 52.3% in Ethiopia (Tsegay et al., 2019), 46.7% in China (Chen et al., 2023), and 14.4–65% in Saudi Arabia (Aziz & Serafi, 2017; Dawood et al., 2016; Khoshhal et al., 2017).

TA is costly for society both financially and in terms of resources. For instance, in Scotland in 2016/2017, 8,180 appointments were recorded for students seeking counselling services due to TA, an increase from 4,541 in 2012/2013 (Armour, 2018). Childline reported a total of 200 counselling sessions related to TA in March 2022, almost double the number in September 2021 (Lough, 2022). The UK government is investing £2.3 billion extra funding in mental health services in 2023/24 through the NHS Long Term Plan, a considerable increase on the £15 million spent on mental health services for university students in 2022/2023.

According to the 2020 University Student Mental Health Survey (Pereira et al., 2020), conducted with 21,027 students from 140 universities across England, Scotland, and Wales, almost half had experienced a serious psychological issue for which they felt they needed professional help. Examination and coursework pressure, workload demands, concerns about academic performance and finances, and the effort of balancing jobs with studying are some of the prominent triggers for mental health problems among students in UK universities (Campbell et al., 2022; Pereira et al., 2020). Statistics show a drop-out rate of 6.4% (176,119 students) for UK universities and there were 319 suicides recorded for university students between 2017 and 2020 (ANS, 2022; Higher Education Statistics Agency, 2021). Indeed, TA within university populations has been linked to increased drop-out rates and suicide internationally (Ali et al., 2020;2021; Cizek & Burg, 2006; Kavakci et al., 2014).

A recent report found that four in five university students in the UK are affected by mental health issues (Student Mental Health Study, 2022). In addition, 22% of the students in the UK were international (HESA, 2022), which may result in emotional distress due to being away from home and far from their families, thus increasing the potential for TA (Ecochard & Fotheringham, 2017). International students in the UK represents an income of £30 billion a year for the British economy (UK Parliament, 2022). The high drop-out rate, of which TA is a major cause, represents a significant economic problem for the education system. TA represents a cost for society, the educational system, and health institutions. Therefore, this research aimed to study the factors leading to TA, seeking to propose means by which academic institutions could become more student friendly, making their environments less anxiety provoking and enhancing their educational potential.

1.2.2 Academic (Knowledge Gaps)

TA is described as a set of tensions, physiological over-arousal, and somatic symptoms, accompanied by worry and dread of failure, experienced before or during testing situations (Zeidner, 1988). The TA construct is viewed as multidimensional and composed of several dimensions that are theoretically distinct, but empirically related: emotions (including physiological aspects) and worry (including cognitive dimensions) (Liebert & Morris, 1967; Spielberger, 1980).

This research aims to address several knowledge gaps regarding the definition and dimensions of TA, examining differences across cultures and educational contexts in

terms of factors influencing its development among local Saudi and British students and Eastern and European international students in the UK.

Dimensions of TA

There is a lack of consensus in the literature concerning the definition and dimensions of TA. Some researchers have focused on the cognitive aspects of TA, disregarding emotions (e.g. Cassady & Johnson, 2002), while others have focused only on emotional factors (e.g. Pekrun et al., 2004). Early research considered TA to be a unidimensional construct (e.g. Mandler & Sarason, 1952), but it is now recognized as multifaceted. Despite the developments in research on TA and the measures used to quantify it, advances in the conceptualisation of the TA construct have not been well documented in the literature. Thus, it is important to capture the dimensions of the construct and develop valid measures of TA. This is the first knowledge gap this research aimed to address.

TA in Postgraduate studies

The second knowledge gap is contextual in nature. In the field of TA, most cross-cultural research has focused on school-age pupils and undergraduates (Bodas & Ollendick, 2005; Elzahhar et al., 1991; Lowe & Ang, 2012; Lowe, 2019; Nyroos et al., 2015; Peleg-Popko et al., 2003; Sharma & Sud, 1990). However, postgraduate students have been reported to be more likely to be affected by stress and more vulnerable than undergraduate students due to the increased level of responsibility for their studies (Mazumdar et al., 2012). This is important as there has been a substantial rise in the enrolment of students in postgraduate taught programmes in the UK since 2008 (Higher Education Statistics Agency [HESA], nd; UK Council for Graduate Education [UKCGE], nd) and in Saudi Arabic (Ministry of Education [MoE], nd).

Postgraduate taught studies are challenging due to their short timeframe and the examinations, coursework, lack of review time and difficult content, all of which can induce academic stress, potentially affecting students' academic achievement, physical and mental health and learning experiences (Bamber et al., 2019; Morgan & Direito, 2016; Zegeye et al., 2018). Therefore, addressing experiences of TA among postgraduate students is of great significance as current knowledge in this area is limited.

Factors Affecting TA

The development of TA in adults could be due to various factors and triggers. Previous research has identified a range of factors that could be associated with genetic or biological components, such as being born with an anxious disposition. Demographic

factors include variables such as gender (e.g., Chapell et al., 2005; Putwain, 2008c; Putwain & Daly, 2014; Ringeisen & Raufelder, 2015) and age (Dawood et al., 2016; Oladipo & Ogungbamila, 2013), which can trigger TA. Genetic factors are manifested in anxiety disorders. They are primarily associated with genetic and biological familial components, as evidenced by findings in the literature (Moller et al., 2015). Research indicates that genetic predispositions account for approximately 30-50% of the variance in anxiety disorder manifestations (Borelli et al., 2015; McClure et al., 2001). Biological factors, on the other hand, include a wide range of physiological aspects, such as heart rate, hormonal levels, and physical health conditions. However, empirical findings investigating these relationships with TA have been mixed (e.g., Cohen & Khalaila, 2014; Daly et al., 2011; Roos et al., 2021). While there is an overlap between biological and genetic factors, biological factors encompass various physiological processes, including heart rhythms and hormonal regulation, whereas genetic components primarily include hereditary predispositions and traits.

In other studies, the phenomenon has been linked to cultural and educational contexts (El-Zahhar & Hocevar, 1991; Klassen et al., 2009), such as the faculty of study (Gerwing et al., 2015; Kumari & Jain, 2014). Moreover, numerous aspects of the social, cultural, and educational context have been identified as affecting TA, such as parents' cultural values, peer comparisons, teachers' practices, and school policies (Chamberlain et al., 2011; Lowe, 2022b; Putwain & Symes, 2011; Segool et al., 2013, 2014; Von der Embse et al., 2018). Considering all these complex interactions in the student environment, the body of knowledge in TA needs a framework that will help understand the dynamics and interactions between these elements.

The cognitive behavioural models offered by Beck (2011), Segool et al. (2014), Friedberg and McClure (2002) and Segool et al. (2014), emphasize the combination of factors, such as cognitive perceptions and prior learning experiences, together with demographic characteristics, the social or educational context, and environmental contingencies (e.g. educational expectations) in triggering TA. While cognitive-behavioral models can be valuable, they predominantly explain TA within specific, defined contexts, such as particular educational settings in a single country. For example, the cognitive behavioural model proposed by Segool et al. (2014) in the context of TA focuses on how TA manifests in high-stakes examinations within a single country or culture, such as high school students in the UK. Similarly, other studies have applied this model in single contexts, such as secondary school students in Australia (e.g., Wuthrich

et al., 2021). However, this thesis focuses on four distinct groups across different cultures and educational settings, comprising local Saudi students, local British students, and European and Eastern international students studying in the UK. Although cognitive-behavioral approaches consider interactions between demographic factors and social and educational contexts, they often do not account for the complex interplay of factors influencing TA across diverse educational and cultural environments. Cognitive-behavioral theory does not facilitate comparisons between different cultures and contexts. For instance, the work of Segool et al. (2014), who proposed a cognitive-behavioral model in the context of TA, is limited to a single context and does not examine the impact of different cultures or transitions from one culture to another. Additionally, this theory does not comprehensively define the interrelations of these factors and lacks in-depth explanations or clear guidance for conceptualizing these connections. Therefore, it remains constrained to single contexts without considering the multifaceted nature of overlapping influences.

To understand TA in different contexts, cultures, and educational settings, it is important to employ a comprehensive analytic framework (Lowe et al., 2008, 2021a; Segool et al., 2014; Von der Embse et al., 2018). In this study, Bronfenbrenner's (1979, 1994, 2005) bioecological model and Lowe et al.'s (2008) biopsychosocial model were adopted. Bioecological theory places the individual at the centre of a nested circle and depicts bidirectional effects, but the focus is on the genetic influences of those in the person's circle that then affect him/her later on (Donelli & Matas, 2020). This thesis focuses on adults (postgraduate students) capable of taking actions to influence the system and reduce the effects of TA. They are responsible for their decisions, which are important for their survival and reconfiguring their interpretations of themselves and society (Christensen, 2016). The person's resilience and ability to cope and manage TA is not reflected in the bioecological model, which views the person as reacting to the surrounding environment. In the context of TA, researchers have argued for incorporating resilience activities (i.e. coping strategies) in the theoretical framework to explain differences in experiences of TA.

Therefore, the biopsychological model of Engel (1977) and Lowe et al., (2008) was also adopted. The biopsychosocial added two additional individual-level factors to compensate for the weakness of bioecological theory, namely mental health and coping strategies (e.g. Putwain et al., 2016; Thomas et al., 2017). Although there is potential usefulness in attaining an in-depth understanding based on an integrative perspective,

there is a lack of literature that has integrated the bioecological and biopsychosocial theories to establish a theoretical perspective for understanding differences in TA in different cultural contexts.

Differences in TA Across Cultures

While TA is a universal phenomenon in almost all countries around the world, levels and experiences of TA may vary across cultures. Indeed, some countries have reported higher TA than others (Bodas & Ollendick, 2005; Hembree, 1988; Lowe, 2019; Zeidner, 1998). Culture is defined as set of values and norms governing the mindset, perceptions, and attitudes of the students in general and towards particular aspects of the educational systems (Boland et al., 2011; Poortinga, 2021; Islamiyah et al., 2020). Culture concept is close to identity which is defined as the beliefs and attitudes that individuals have towards their ethnic racial group memberships (Hoffman et al 2019). Identity is more about the belonging of the person towards a group of people (i.e. nation or race) while culture is about the values and norms of the person that shapes the perceptions and attitudes (Wetherell, 1996; Grimson, 2010). In the context of higher education, culture includes the shared values and norms of individuals, which influence their attitudes and beliefs towards the university policies (Lowe, 2022b), relationship with the teacher (Cortina et al., 2017; Lowe & Ang, 2012 Sha, 2018), and giving meaning and importance of the assessment (Lowe, 2022b; Segool et al., 2014). In this thesis, culture is conceptualized as the set of values and norms that shape the perceptions, beliefs, and attitudes of students, both generally and in relation to specific dimensions of the educational system.

Cultures are categorized by different constructs such as collectivism versus individualism (Hofstede, 2011), religious versus secular (Cladis, 2010; Huss, 2014), and competitive versus collaborative (Hofstede, 2011). Each aspect of the culture could play a role in giving meanings to the assessments which in turn could emphasis stress and anxiety when students face them (Lowe & Ang,2012; Lowe, 2022b; Peleg-Popko et al., 2003; Stankov, 2010). In collectivist cultures, individuals are integrated in cohesive groups, such as their extended families, and a focus on belonging and relationships dominate over tasks (Hofstede, 2011). Saudi Arabia is indexed as a collectivist culture in the literature (Hofestede, nd). As members of a collectivist society, Saudi students' performance in terms of failures and successes are shared among their families and communities (Al-Romahe, 2018). Alsahman et al. (2019) found almost half of the Saudi students in their study experienced examination-related anxiety arising from parental

expectations. Such cultural factors in the form of pressure and expectations placed on Saudi students may result in the development of TA.

In contrast, in individualist cultures, social connections among individuals are tenuous as there is an expectation that each person is responsible for them and immediate family (Hofstede, 2011). The focus is on the right to privacy and tasks dominate over relationships. It is suggested that the individualist orientation might help students develop the attitudes, coping strategies, and skills needed to achieve in standardized tests (Diaz-Guerrero, 1976, cited in Lowe & Ang, 2012). However, research on the differences between individualist and collectivist cultures in experiencing TA is still limited. There is a need for framing in terms of the theoretical perspective to understand the possible differences between these cultures and the impact on international students in their home or host countries.

Systematic reviews examining the varying experiences and impacts of TA between nations are relatively old, for example Hembree (1988) and Zeidner (1998). Although recent systematic reviews have aimed to investigate TA (Butler-Henderson & Crawford, 2020; Vincent et al., 2022), the focus has been on aspects such as differences in assessments and TA, but not cross-cultural differences or variations among countries. With the rapid advancements in technology and development of globalization in the 2020s and potential diminishing of cultural and institutional differences across countries, it is unclear whether there are still significant distinctions in experiences of TA across countries. This is the second knowledge gap the research sought to address.

1.3 Research Context

To understand the students' experiences of TA in this study, it is necessary to consider the influence of the cultural and educational contexts in the United Kingdom (UK) and the Kingdom of Saudi Arabia (KSA), where this research was conducted. These contextual factors are presented in Table 1.1 and discussed in further detail in Chapter 2.

Table 1. 1 Summary of characteristics of the UK and KSA contexts

	UK	**KSA**
Culture	Individualist/low power distance (Hofstede Insights, n.d.)	Collectivist/high power distance (Hofstede Insights, n.d.)
Education System		
Assessment methods	Predominantly coursework (undergraduate and postgraduate)	Traditional examinations (undergraduate) Coursework and traditional examinations (postgraduate)

Cost of education	Not free (Marginson, 2018)	Generally free with stipends (Alamri, 2011)
Duration of studies	1 year intensive (Coneyworth et al., 2020)	At least 2 years (Umm Al-Qura University, n.d.; University of Hail, n.d.)

1.3.1 UK culture and education system

The UK is characterized as individualist, valuing personal autonomy and self-sufficiency. This mindset fosters a sense of self-direction, encouraging people to pursue personal fulfilment (Hofstede, n.d.). Moreover, the UK has a low power distance society, which is guided by a strong sense of fairness, reflected in a belief in reducing inequalities (Hofstede, 2011).

In terms of education, in recent decades, the UK higher education (HE) system has undergone rapid changes in terms of internationalization of the curriculum (Haigh, 2002; Mullins & Roberts, 1996), cuts in government funding, and increased tuition fees (Watters, 2014). While the Student Awards Agency for Scotland (SAAS) pays for students from Scotland and the European Union (EU) to take their first degrees, fees are applied elsewhere in the UK (Raaper, 2016).

Although the education system in each country in the UK has distinct features (Bray & Jiang, 2014), HE broadly covers first (undergraduate) and higher (e.g., Master's and doctoral) degrees, professional qualifications, and diplomas. The pattern of degree courses corresponds to those adopted in the European Commission (EC) Bologna Process. Undergraduate studies take three or four years and a Master's degree takes one year (Coneyworth et al., 2020; Harris & Gorard, 2009). There are two parallel frameworks for HE qualifications in Scotland (FQHEIS) and the rest of the UK (FHEQ). At the post-graduate level, these have common structures, qualification titles, and descriptors. Level 7 of the FHEQ is aligned with SCQF level 11 on the FQHEIS and the minimum credit for both is 180 (150), awarded to students who demonstrate understanding of knowledge, show critical awareness of current issues, and create knowledge in the discipline (Quality Assurance Agency [QAA], 2014, 2018).

In 2020, The QAA for HE determined that master's degrees can be of different types (professional, research, advanced study), and can be assessed in different ways depending on the overall aims of the course. Diverse teaching and learning methods are used, and there has also been a marked rise in the adoption of coursework for end-of-

module assessments in the UK (Richardson, 2015; see also “Assessment Strategies in Scottish Higher Education”, Hounsell et al., 1996).

1.3.2 Saudi culture and education system

Hofstede's (n.d.) classification identifies the KSA as a collectivist country, characterized by strong and lasting commitments to groups (families and social networks), fostering solid interpersonal relationships, with individuals taking responsibility for one another and valuing collective welfare. There is also considerable emphasis on maintaining social appearance and “face” value. The KSA has a high-power distance society (Hofstede, n.d.), meaning that unequal power distribution and established hierarchies are accepted, and authority is respected and acknowledged.

In terms of education, studying at public universities is generally free. The Saudi government covers tuition fees and often provides additional financial support in the form of scholarships, which can include stipends for living expenses (Alamri, 2011). According to the National Commission for Academic Accreditation & Assessment (NCAAA, 2009, 2011), post-graduate studies include diplomas, and Master’s and doctoral degrees. Completing a Master’s degree programme, a level 5 qualification, typically takes a minimum of two years (e.g. Umm Al-Qura University, n.d.), and requires 24 or 39 credit hours depending on the thesis or project scale. Those who have achieved highly in a Bachelor’s degree, normally a GPA of three or better, are typically eligible.

In 2005, with the establishment of the NCAAA, great emphasis was placed on learning outcomes, teaching, and assessment. As a result, attitudes have changed in the KSA and new plans have been developed to provide a flexible assessment approach matching learning outcomes (Almusallam, 2007, cited in Darandari & Murphy, 2013). However, although the recent educational reforms support post-secondary teachers in applying student-centred learning approaches, some faculty members in the KSA, as in many Arab countries, continue to use assessment methods designed for traditional teaching approaches (Darandari & Murphy, 2013). In secondary education and HE, assessment is usually in the form of examinations, with students typically assessed by teachers through paper-and-pen tests. Such assessment relies on rote learning, leading to a focus on memorization rather than understanding (Alharethi & AlDighrir, 2014).

1.4 Research Questions, Aim, and Objectives

This study sought to respond to the overarching questions: 1) How and 2) why students experience TA and its consequences differently across cultures in different educational contexts. In doing so, it aimed to develop a framework to understand individual and cross-cultural differences that influence international and local students' experiences of TA in the postgraduate context and to address the following research objectives:

RO1: To define, differentiate, and taxonomize experiences of TA in different contexts.

RO2: To define and investigate the factors influencing TA across cultures and educational contexts.

RO3: To define the different coping strategies in each context and culture that could alleviate or exacerbate TA symptoms and its effects.

1.5 Methodology

This research assesses TA, examines individual factors, and explores and investigates factors that could lead to TA in cross-cultural settings. Given the variety of objectives from both ontological and epistemological standpoints, this study utilized a pragmatist research paradigm, combining different methods to yield and present complementary results, as detailed in Chapter 3. The employed methods were: (i) a systematic review to analyse and categorize the facets of TA, drawing from existing literature; (ii) a questionnaire to explore the variations across different contexts and cultures, using primary empirical quantitative data; (iii) a series of interviews along with photo elicitation and vignettes aimed at identifying, examining, and understanding the contextual influences on TA, with a theoretical foundation in Bioecological and Biopsychosocial theories

1.6 Thesis Structure

To respond to the research questions and meet the aim and objectives, this thesis is structured as follows. Chapter 2 reviews the literature on TA in general and in cross-cultural contexts specifically to define the knowledge gaps and establish the theoretical framework to guide this research. Chapter 3, based on the theoretical framework and knowledge gaps, sets out the research paradigm, methodology, inquiry methods, and analytic techniques.

Chapter 4 is dedicated to reporting the results from the first phase of this research, namely the systematic review. This review aimed to address RO1, defining and taxonomizing the symptoms of TA and differentiating them based on the context by examining 81 studies.

Chapter 5 focuses on the findings from primary data drawing on the responses to a survey from two different contexts and cultures: Saudi Arabia Locals, UK locals, and European and Eastern. The survey assessed the differences in experiences of TA and examined the proposed individual factors that could lead to TA. Chapters 6, 7, and 8 report the qualitative research results answering the research objectives. Finally, Chapter 9 discusses the results and provides a conclusion, highlighting the implications for stakeholders and setting out avenues for further research.

Chapter 2. Literature Review

2.1 Introduction

The aim of this chapter is to propose an analytic framework that will address experiences of TA in different contexts and why and to what extent these experiences differ for local British students at UK universities, Saudi students at Saudi universities and international students at UK universities. This chapter addresses the definition of TA as a psychological construct and causal factors (section 2.2). The causes of TA are manifold and include cognitive, behavioural, cultural and contextual factors, which requires the application of a comprehensive and integrative analytic framework to answer the research questions. The only frameworks in the literature that might adequately address TA are the biopsychosocial (section 2.3.1) and bioecological (section 2.3.2) frameworks. This research employs both these frameworks as while the former sheds light on some aspects of TA, the bioecological framework is more comprehensive and overcomes the weaknesses of the biopsychosocial framework. Thus, it is selected as the basis for synthesising and comprehending the literature concerning the factors that could result in the development TA symptoms, examining these factors at different levels and from various perspectives (section 2.4). The academic literature is reviewed to conceptualise and operationalise the analytic constructs (i.e. layers of influence) with reference to the macrosystem (section 2.4.1), exosystem (section 2.4.2), mesosystem (section 2.4.3), microsystem (section 2.4.4) and individual (section 2.4.5) levels, demonstrating the validity of using the bioecological framework as a means of understanding the factors underpinning TA.

2.2 Test Anxiety (TA)

Anxiety, in general, is a personal subjective experience of apprehension and fear accompanied by physiological arousal, such as the palms becoming sweaty and the heart rate increasing (Eysenck, 1992). Anxiety may be traced to a certain stimulus or be triggered without a rationale or known reason (Reber, 1995). For those types of anxiety that are triggered by a certain stimulus, anxiety, as an experience, is operationalised in three different forms: cognitive, emotional and physiological arousal. The cognitive aspect, sometimes conceptualised as worry (Putwain & Aveyard, 2018), concerns thinking of negative consequences, which can translate into fear and apprehension (Matthews et al., 1999; Thomas et al., 2022). The second aspect – emotional – is represented, for example, by students describing their emotions towards the final year

assessment as “anxious” and “fearful” (Lotz et al., 2021). The third aspect is physiological arousal, manifested in the bodily symptoms of anxiety, such as sweating, an increase in heart rate and cold hands (Thomas et al., 2017).

Academics sometimes merge emotional and physiological arousal in a single construct (Speilberger et al., 1976). A common stream of research highlights the negative consequences or adverse events that might happen (Matthews et al., 1999). Worry specifically refers to the cognitive dimension of anxiety, the intrusive preoccupying thoughts associated with a heightened sense of vulnerability (Putwain, 2007). emotionality refers to autonomic and physiological reactions, presenting as negative feelings such as anxiety (Liebert & Morris, 1967) and increases in the level of one’s arousal (Lowe et al., 2008; Sarason, 1978) triggered by anxiety. To sum up, anxiety comprises two main aspects: worry (cognitive) and an emotional response (including physiological arousal). TA is perceived as similar to the anxiety construct in having cognitive, emotional and physiological components (Sarason, 1984). Like anxiety more broadly, TA entails emotionality (affective-physiological reactions) and worrisome cognitions (referred to as worry for expediency), but it also incorporates an additional dimension concerning the results of being evaluated by others, which makes some expect disappointment and its consequences (Spielberger & Vagg, 1995).

TA is a unique construct as it is connected to an obligatory evaluative situation, such as an examination (Jerusalem, 1985; Matthews et al., 1999; Sarason, 1978; Von der Embse et al., 2018). Unlike other forms of case-specific anxiety (e.g. social anxiety or a phobia) from which the person can escape simply by removing himself/herself from the situation or context, TA is a response to a context in which there is no opportunity to escape, leading to behavioural components in the form of coping strategies (Putwain et al., 2016). Worry without the ability to escape physically from the situation leads to a psychological escape through the application of avoidance strategies, such as not attending lectures (Fishstrom et al., 2022) procrastination, irrelevant thinking at the time of exams, excessive daydreaming, or distracting the self (Thomas et al., 2017), which results in impaired working memory and disrupted recall of learned information when taking examinations (Owens et al., 2014; Zeidner, 2014). These can influence academic performance (Cassady, 2004; Hembree, 1988; Von der Embse et al., 2018; Zeidner, 2007).

Exam performance, in turn, can affect students not only in the immediate timeframe, but also over the long term. Indeed, in the case of high-stakes examinations, there is a potential influence on their whole career, exacerbating their worry and emotional reactions (Putwain & Von der Embse, 2020; Segool et al., 2013). An examination can thus be perceived as an obligatory life-threatening event that a person has to pass through (Spielberger & Vagg, 1995). Consequently, a major difference between TA and other forms of anxiety is the timing. While other forms of anxiety mainly occur during or before the anxiety-provoking situation only, TA is experienced before, during and after the exam (Lowe et al., 2008).

Based on the perception that certain examinations can influence a person's whole life and their obligatory nature, TA is operationalised as a fear of failure (Meijer 2001), worry about the negative consequences of evaluation (Von der Embse et al., 2018), a threat to the ego or self-esteem (Spielberger 1966), worry about one's own abilities (Carver & Scheier, 1991; Sarason, 1978), worry about poor performance (Hong 1999), and social evaluation and ambiguity (Endler & Parker, 1990). Sapp et al. (1995) described TA conclusively and concisely as a special type of general anxiety that is associated with taking an examination. This thesis synthesises these academic views and perspectives concerning TA, defining it as a situation-specific form of trait anxiety due to exposure to an obligatory examination that could have future effects on a person's life, leading the individual to experience extensive worry, tension, mental disorganisation and physiological arousal.

2.3 Theoretical Perspective

TA can be defined as a situation-specific form of trait anxiety (Putwain & von der Embse, 2020; Spielberger & Vagg, 1995). The major debate about TA is whether it is caused by genetic/biological factors (Danthony et al., 2020; von der Embse et al., 2018), environmental factors related to the culture or educational setting (Lowe & Ang, 2012; Lowe, 2019), or a mix of factors interacting with each other that could shape and form the experience of TA for students in different contexts. This enduring issue requires the use of an integrative analytic framework.

In terms of the drivers of TA, studies have attributed it to genetic, biological or demographic factors. Research indicates that genetic predispositions account for approximately 30-50% of the variance in anxiety disorder manifestations (Borelli et al., 2015; McClure et al., 2001). Women, as a gender, are more facing TA than men in similar

contexts and environments (e.g. Chapell et al., 2005; Putwain, 2008c; Putwain & Daly, 2014; Ringeisen & Raufelder, 2015). Similarly, older students are facing TA more than younger ones (Aydin, 2013; Dordinejad et al., 2011). Such studies provide a robust argument that TA is a person-focused problem.

However, other research has argued that the phenomenon could be associated with cultural or educational settings. For instance, individuals in collectivistic cultures dominated by competitive educational settings, such as Singaporean males, reported higher TA than males in the US, considered to be more individualistic (Lowe & Ang, 2012). Social responsibility is encouraged in some Eastern cultures, such as Singapore, where men are viewed as responsible for their family financially and for the care of their parents (Lowe & Ang, 2012).

Within different educational settings, factors that predict TA include assessment types, teacher practices, and school policies, all of which may differ by school or by country (Chamberlain et al., 2011; Von der Embse et al., 2018; Putwain & Symes, 2011; Segool et al., 2013, 2014). In terms of the cultural element, Lowe (2022b) and Segool et al. (2014) identified several aspects of the social context as exerting an influence, for example, peer comparisons, parents' cultural values, and society's perceptions of the importance of the assessment(s).

Another school of research argues that it is not individual, cultural or educational factors alone but rather a combination of factors that drive TA. These include factors such as the individual's self-efficacy, educational motivation and self-regulation (Dull et al., 2015; Khalaila, 2015; Schnell et al., 2015), academic expectations and achievement standards (Ringeisen & Raufelder, 2015; Von der Embse et al., 2015a), and age and gender (Dawood et al., 2016; Oladipo & Ogungbamila, 2013; Von der Embse et al., 2018). Given the likely interaction between environmental and individual factors Beck (2011), Friedberg and McClure (2002) and Segool et al. (2014), have argued the need for cognitive behavioural models to understand the cognitive process and how perceptions of an assessment and its importance in a person's life are shaped, perhaps by different learning experiences, past experience of failing or passing exams, pressure due to social and cultural values and the contingencies of the situation (e.g. the perception of the difficulty and importance of the assessment).

Such cognitive models are useful in explaining the experience of TA for a person in a certain context (as detailed in Factors Affecting TA; P.17). However, there is a need to highlight the interaction between the culture, educational setting, influence of family and

friends and personal genetic and non-genetic factors to attain a comprehensive and integrative view of the dynamics that could result in differences in the experience of TA in various contexts. For example, studies might examine differences between one exam type versus another, one country versus another, and one educational setting versus another (Von der Embse et al., 2018).

To achieve the aim of understanding the differences in experiences of TA in different contexts and for different students across different educational and cultural settings, this study adopts a comprehensive analytic framework, comprising the bioecological model of Bronfenbrenner (1979, 1994, 2005) and the biopsychological model of Engel (1977) and Lowe et al. (2008), as detailed below.

2.3.1 Biopsychosocial theory

Biopsychosocial theory was developed in the late 1970s to understand and explain patients' physical and emotional suffering and develop strategies for remedying their pain (Borrell-Carrió et al., 2004; Engel, 1977; Schwartz, 1982). Engel (1977) offered a holistic perspective to understand the connection between the person and society that could evolve into physical pain. At that time, researchers explained pain solely with reference to biomedical models and there was a lack of understanding of the role of the psychological state of the person, family and friends and societal influences, i.e., the relationship between the self and the surrounding environment (Engel, 1977, 1980; Podgorski, 2021). Thus, Engel's (1977) framework pioneered the study of psychosomatic illness.

TA is not an odd phenomenon here (Lowe et al., 2008). It is triggered by genetic factors (Lowe et al., 2008; Putwain, 2008c; Putwain & Daly, 2014) and reflected in biological symptoms (Sarason, 1984). However, the environment could also play a significant role in triggering TA (Agbaria & Bdier, 2020; Lowe, et al., 2008; Thergaonkar & Wadkar, 2007; von der Embes et al., 2018). In this regard, biopsychosocial theory has been applied by researchers in different ways. The first school used biopsychosocial theory to explain the triggers and factors that result in the development of TA symptoms (Fishstrom et al., 2022; Lowe et al., 2008; Putwain & Symes, 2011; Wan et al., 2022), while the second used this theory to define TA symptoms (Lowe, 2021c; Thomas et al., 2018; Xu et al., 2020; Von der Embse et al., 2013, 2014).

The first study to replicate the work of Engel in the TA context was that of Lowe et al. (2008), which conceptualised the factors affecting TA within a biopsychosocial model. Lowe et al. (2008) defined the factors as biological (e.g. intelligence and academic

ability), psychological (e.g. mental health aspects, trait anxiety, self-efficacy, social-emotional functioning and study skills) and social factors (e.g. family and peer effects, community and school influences). Lowe later pioneered the use of this theory to measure and define the symptoms of TA (Lowe, 2015, 2021a, 2021c, 2021d,), categorising them as social, biological and psychological, or at an operational level as social concerns, cognitive interference, task-irrelevant behaviours, physiological hyperarousal and worry.

Some studies followed Lowe et al., (2008) in explaining the factors pertaining to TA (e.g. Fishstrom et al., 2022; Putwain & Symes, 2011; Wan et al., 2022). Putwain and Symes (2011) used the analytic framework to show the connection between teachers' experience of pressure and their influence on the TA of their students, while Wan et al. (2022) used the model to propose the effects of being perfectionist on TA. At the same time, other researchers used this theory as a model to define the symptoms of TA (e.g. Lowe, 2021c; Thomas et al., 2018; Xu et al., 2020; Von der Embse et al., 2013, 2014).

The more prevalent application of the model to measure TA rather than using it as an analytical framework to explain the underpinning factors could be due to several reasons. First, most of the papers in this field are quantitative (Von der Embse et al., 2018) and hence are by nature reductionist in terms of focusing on measurement and underlining a few constructs at a time (Tashakkori & Teddlie, 2011). The use of biopsychosocial model as a quantitative tool for measuring TA has prevailed over its use as a qualitative instrument, i.e. as an analytic framework for interpreting interview data and contextualising the concept of TA.

Second, the analytic framework is still in its early days as only a few papers have used it as a framework (Lowe et al., 2008) and a little quantitative research has attempted to use it to justify and theorise the antecedents of TA (Putwain & Symes, 2011). While this framework is relatively comprehensive, it does not clearly define how the social, psychological and biological factors influencing each other. Lowe et al. (2008) depicted the framework as three interconnected circles but did not go into an in-depth explanation establishing clear guidance for framing these connections. This research applies biopsychological theory as analytic framework to compensate for the possible weaknesses in fit between the bioecological analytic framework and the TA context, specifically in addressing the experiences of postgraduate students across cultures.

2.3.2 Bioecological theory

Bioecological theory argues that human development is the outcome of external environmental factors, and the bio aspect focuses on genetic and biological factors (Bronfenbrenner, 1979, 1994, 2005). The ecological theory of human development developed by Bronfenbrenner (1979, 1994) focused on the influence of (i) interactions in the context and (ii) the connections between individuals and their ecological system on individual development, comprising layers that are closer to or more distant from the child and his/her experiences. Later, ecological theory was developed and became bioecological theory to address criticisms that the surrounding systems were overestimated, and individuals were underestimated (Tudge et al., 2009). The later development thus valued the role of the biological selves in addition to the ecological layers.

Bronfenbrenner (2005) integrated the two perspectives to understand the development of children. According to bioecological theory, the person is an outcome of their biological factors and factors at the levels of the microsystem, comprising a closed circle of others (i.e. family and peers), the mesosystem (i.e. assessment strategies), the exosystem (i.e. the educational system) and the macrosystem (i.e. government policies and the culture). The development process is framed in time, the chronosystem, which relates to changes or consistencies across time in individuals' characteristics or the immediate environment that affect individual development, such as the structure of family, marital status, employment or place of residence (Bronfenbrenner, 1994), or in this context, from one country to another or moving from the undergraduate to postgraduate education system. Bronfenbrenner's theory thus provides an insight into "human development within the context of the system of relationships that form the person's environment" (Johnson, 2008, p. 2).

Although developed to study children's development, researchers have used the model with adults. For instance, Elliot et al.'s (2016b, 2016c) findings are insightful in understanding the challenges facing international PhD students. The theory considers that everyone's distinctive experiences and interactions are sculpted by a layered system with the individual at the centre, making the embedded figure at the heart of a matryoshka or Russian nestled doll a fitting metaphor (Elliot et al., 2016b). Within this framework "the principle of interconnectedness" is utilised "within settings" and to make "linkages between settings" (Bronfenbrenner, 1979, p. 7). The multi-layered and multi-dimensional components of the theory and its emphasis on the cultural contributions to

human development make it a more appropriate means of studying TA in cross-cultural contexts (Saudi Arabia and the UK) than other frameworks such as biopsychosocial theory (see 2.3.1).

To sum up, TA is a result of different combinations and interactions of social, cultural, contextual and individual factors. A holistic and integrative framework is needed to analyse the roots of TA and possible reasons for differences in experiences of TA between local students in Western and Eastern countries (UK and Saudi), as well as international students studying in a Western society (UK).

2.4 Bioecological Analytical Framework

The following sections consider the bioecological nested system and supplement this with explanation and examples from the literature to establish the theoretical basis for the comparison of experiences of TA between local and international students. They detail each of the layers – macrosystem, exosystem, mesosystem and microsystem – and explain specifically how each system impacts the others and contribute to the experience of TA among postgraduate students in different cultures and those moving from one culture to another.

2.4.1 Macrosystem

It is important to apply a theoretical framework that links the broad cultural context and the individual, which is best introduced through the work of Bronfenbrenner (1979, 1994). In his bioecological model of nested structures, the outermost layer is the *macrosystem*, which represents the cultural context and social knowledge passed on through societal norms, lifestyles, customs and traditions, prevailing beliefs and political and economic systems. The macrosystem is considered a "social blueprint" for a specific culture or sub-culture or other wider social setting (Bronfenbrenner, 1994, p. 40).

Applying the same line of thought, the principal factor that influences learners' TA is the surrounding culture of both the home and host countries (Bodas & Ollendick, 2005; Lowe & Ang, 2012; Lowe et al., 2021c; Sharma & Sud, 1990). Kroeber and Kluckhohn (1952) defined cultures as patterns – explicit and implicit – of and for behaviour acquired and transmitted by symbols constituting the distinctive achievements of human groups, including their embodiments in artefacts. Eastern and Western societies are considered to differ culturally in general and regarding their norms in particular. Eastern societies are proposed to be collectivist (Lowe & Ang, 2012; Lowe et al., 2021c), based on social

comparison (Chung & Mallery, 1999) and tend to represent Confucian values (e.g. Ang et al., 2009; Li et al., 2008).

Researchers in the Saudi Arabian context, also suggested to be a collectivist society, have theorised that one reason students experience TA is parental expectations, which exert pressure on the students and trigger TA (Alsahman et al., 2019; El-Masry, 2013; Hofstede Insights, n.d.; Soliman, 2014). Family honour and educational success are emphasised in Eastern collectivist societies such as Singapore and China; families compare themselves to each other and children are raised not to disappoint their families (Ang et al., 2009; Diaz-Guerrero, 1976; Nyroos et al., 2015). They also embrace Confucian values, such as obedience to parents and teachers. Studies have found higher TA in collectivist countries such as China, Singapore and the Arab nations than in Western cultures, such as Finland, the US and Israel, where there is less fear of parents' and teachers' reactions to educational achievement (Lowe et al., 2021c; Nyroos et al., 2015; Peleg-Popko et al., 2003).

Western societies are viewed as more autonomous, independent and individualist (Kitayama et al., 2010). In Eastern cultures, the self is considered interdependent and related to others (Krumov & Larsen, 2013). According to the theory of self-construal, developed by Markus and Kitayama (1991a, 1991b), interdependent (collectivist) and independent (individualist) self-construal leads to cultural differences in terms of emotion, cognition and motivation. Western cultures are thought to endorse autonomy and independence (Krumov & Larsen, 2013) and it is theorised that students might experience lower levels of TA because the culture of independence and self-regulation helps them adopt proactive coping strategies and prepare for examinations, while this is less the case for those in interdependent cultures (Diaz-Guerrero, 1976). To sum up, differences in the culture could play a role in differentiating TA across nations.

2.4.2 Exosystem

The second outermost layer, according to the bioecological framework, is the exosystem. This is defined as the systemic structure of the external environment in terms of the country's policies and rules (Bronfenbrenner 1979, 1994). In the context of this research, governmental education policies and regulations influence how schools operate and this could influence the students' TA levels (O'Driscoll & McAleese, 2022; Raymo et al., 2019; Von der Embse et al., 2018). In the field of TA, two structural aspects could

influence students' experiences in different countries: (i) differences between the school and university levels and (ii) the competitiveness of the education system, leading to competition between students to attain limited positions or places (Bonaccio & Reeve, 2010; Duraku, 2017; Goetz et al., 2008; Hurst et al., 2013; Lowe & Ang, 2012).

Concerning the differences between the school and university educational systems, universities are more flexible in their approach to teaching and learning, which could make university students more anxious (Wanner & Palmer, 2015). Universities require greater independence and responsibility on the part of students than schools and this potentially makes moving from the school stage to the next level stressful, resulting in a greater possibility of experiencing TA (Varghese et al., 2015; Wanner & Palmer, 2015). The gap between the pedagogical practices at school and university could make students anxious and confused (Fook & Sidhu, 2015). In the Social Survey of the German Student Union, 15–20% of students reported having TA and this was blamed for their intention to drop out (Neuderth et al., 2009; Schaefer et al., 2007). İnkaya (2019), in a study conducted in Turkey, found that a change to the examination system in 2018 caused more anxiety among students than those who took the same examination in the following years.

Critical thinking is regarded as a crucial component of higher education in many countries (Barnett, 1997; Davis & Barnett, 2015; Fox, 1994). Educational systems differ across countries which could lead to anxiety for students moving from one system to another. For instance, European, UK and Scottish educational qualification frameworks embed critical thinking at the postgraduate taught and postgraduate research levels (EC, 2005; QCF, n.d.; SCQF, 2012), whereas in Eastern countries such as India (Kumar & Behera, 2021) and Pakistan (Ahmed &Ahmed, 2017) there is a culture of rote learning (Rahman et al., 2022) and preliminary and secondary schools tend to focus on memorisation rather than creative thinking (Bouhlila, 2011). For students then moving to universities that seek creativity and critical thinking, the possibility of triggering TA will be higher than for those who move to universities that embrace memorisation approaches in assessments. Therefore, analogously, an international student from an Eastern country studying in a Western country may experience more stress and anxiety than local students (Redfern, 2016).

The second aspect is the competitiveness of the education system, related to having limited spaces for students who finish standardised exams (Lowe et al., 2022b). Such

assessments are termed high stakes (Putawin 2008). In Canada and Singapore, there are fewer university seats available than in the US, which triggers more TA for Canadian and Singaporean students than American students (Ang et al., 2009; Lowe, 2022b; Lowe & Ang, 2012). In Jordan also, students in secondary school are required to sit high-stakes exams and the results determine whether they will be admitted to university (Ahlawat, 1989). Moreover, there is an issue not only in moving from secondary school to the university level but also from university to the workplace. In Canada, the scores for the last two years of university can make a difference to students' potential income and opportunities to find good jobs, thus leading to high TA (Lowe, 2021a). Lowe (2021a) found that Canadian students self-reported more worry and physiological hyperarousal as symptoms of TA than US students. These findings suggest differences in the structure of higher education systems may lead to intense competition, which may then be associated with higher levels of TA in students. Specifically, students in competitive educational systems may experience more TA than others.

To sum up, the exosystem concerns the interaction of the country's educational policies and rules and students' perceptions of the self, which could create TA. If the educational system makes exams highly competitive, TA may prevail. Also, if students are accustomed to learning based on memorisation, the shift to a different approach at university increases the possibility of TA, especially for those moving from the East to the West. These arguments have not been addressed before in the literature and this mixed methods research thus investigates, quantifies and examines them.

2.4.3 Mesosystem

The third layer of the bioecological system is the mesosystem, in which there are interactions between more immediate influences in the students' lives, for example schools and teachers (Bronfenbrenner, 1979, 1994). While the theory was developed with child development in mind, rather than the mental health of adults, it can nonetheless be applied in the study of TA. In this social context, the assessment strategies, classroom management and relationships between teacher and students are the direct non-microsystem factors that could trigger TA (Goetz et al., 2008; Lowe, 2022b; Segool et al., 2013).

The first aspect of the mesosystem here is the assessment strategy, defined as the typology of assessment (e.g. multiple-choice, open-ended questions) (Wahyuni et al., 2021), its nature (e.g. duration, level of difficulty, workload, memorisation vs critical

thinking, written vs oral, computer vs paper, summative vs formative) (Baig et al., 2018; Bonaccio & Reeve, 2010; Hashmat et al., 2008; Ismail et al., 2022; Khan & Madden, 2018; Marshall & Jones, 2003) and quantity (Kurt et al., 2014).

In some developing cultures, memorisation-based assessments predominate, for example in Lebanon (Aljaafil & Beyhan, 2021), Pakistan (Ishaq et al., 2020) and Kuwait (Erguvan, 2022), while questions requiring critical thinking are more prevalent in university systems in developed countries such as the UK and USA (Bouhlila, 2011; Liyanage et al., 2021; Pertiwi et al., 2021; Ryan et al., 2013; Zhan, 2021). Each type of assessment has its pros and cons and could alleviate or trigger TA, discussed in further detail in the systematic review in Chapter 4 and in qualitative findings in Chapter 7.

The second aspect is classroom management, which tends to differ according to the educational setting and cultural factors. When the classroom climate is positive, encouraging and collaborative, students are likely to be less concerned about their abilities and their TA will reduce drastically (Ames, 1992; Roeser & Eccles, 2000; Slavin, 1983; Tang, 2022). In contrast, when the classroom is competitive and fosters rivalry between students, they may feel less able to perform and thus TA increases (Lowe et al., 2005; McDonald, 2001; Preckel et al., 2008). When the teacher or the school system ranks students based on their marks and creates an atmosphere in which students' performance is compared, TA increases considerably (Goetz et al., 2008; Hancock, 2001; Zeidner, 2007). In the Arabic education system, as in the KSA for example, schools publish the students' rankings and top-ranked students are hired, while others do not have a similar opportunity (Almoallim et al., 2010; Alnahdi & Anastasiou, 2020; Al-Sowygh et al., 2013; Halawany et al., 2017; Kulsoom & Afsar, 2015; Labib et al., 2021; Samreen et al., 2020; Taylor & Albasri, 2014). In contrast, in the UK, students' marks are private and there are no rankings of student performance (Schloer, 2020). Students moving from the Saudi educational experience of the ranking system could have questions on moving to the UK, such as whether their performance will be compared with that of their peers or if the environment will be more relaxed.

Culture plays a role in disentangling the nexus between the teacher and student and TA. In high power distance societies (Hofstede, 2011), the relationship between the teacher and students is rigid and obedience is expected, while in low power distance societies, the relationship between them is more friendly and informal (Cortina et al., 2017; Sha,

2018). For instance, in China, the relationship between the teacher and student is typically formal and based on following instructions, while in the US, students may have more friendly relationships with their teachers (Sha, 2018). Students moving to higher education or from an Eastern culture to Western educational institutions may notice a change in the relationship between the teacher and student, which could influence their perception of TA. As no research has yet theorised the transition of the international student from East to West, this point will be investigated in depth in the qualitative analysis (see Chapter 7).

To synthesise the literature related to the mesosystem, international students are expected to be affected by moving from high power distance and collective/competitive cultures typified by memorisation-based assessments, strict relations with the teacher, a competitive education system and league rankings of students' marks, to low power distance democratic systems in which critical thinking assessment prevails, the relationship between teacher and student is less formal and students' marks are not disclosed in public. This change in moving to higher education or from one culture to another could play a role in TA levels. This aspect has not been studied before in the literature and will be expanded on and investigated further in the qualitative analysis in Chapter 7 with international and local Saudi and UK postgraduate students.

2.4.4 Microsystem

The fourth layer is the microsystem. This is the layer in which direct interactions between the child/individual and those closest to him/her in the environment – parents, peers and teachers – occur (Lowe et al., 2008, 2022). It is the innermost layer, in which students engage in direct interactions with their instant environments through social activities (Bronfenbrenner 1979, 1994). The students' direct interactions with their peers and families could shape their perceptions of themselves and their capacity to achieve the required "norms" in society such as getting the highest marks in the class (Brandmo et al., 2019; Pomerantz et al., 2005; Urdan et al., 2007; Zeidner, 2014). Gifted students experience more TA when they are compared with others than in contexts where similar comparisons are not made (Goetz et al., 2008). Having competitive peers in the class could thus put pressure on students and lead to TA.

Psychoanalytic theory has highlighted the importance of the quality of the parent–child relationship in the transmission of anxiety (e.g. Bowlby, 1988; Horney, 1999; Sullivan, 2013). Parents who feel insecure about their children's future may induce feelings of

hopelessness in their children and thus trigger TA symptoms (Baytemir, 2023; Peleg-Popko et al., 2004). Anxious parents, according to Baytemir (2023), tend to blame their children and criticise their capabilities, making them feel anxious about their ability to perform in exams. Conversely, parents who feel safe and give emotional support to their children help them feel secure and better able to deal with ambiguity, making them less likely to have TA (Peleg-Popko, 2002; Peleg-Popko & Klingman, 2002). Song et al. (2015) conducted a three-year longitudinal study with Korean middle school students and found that parental and peer support played a significant role in alleviating TA and improving academic performance by improving the children's self-efficacy and their views of themselves. However, Ringeisen and Raufelder (2015), in a study of German adolescents, found that parental support increased TA, leading them to argue that pressure and support are "two sides of the same coin" (p. 75). This is consistent with other research that found support increased TA (Peleg et al., 2016). In contrast, Putwain et al. (2010) found no significant relationship between parental support and different dimensions of TA (test irrelevant thinking, bodily symptoms, tension and worry). These contradictory findings concerning the role of support in triggering TA could indicate that it is not only about the support; it is about the complete relationship between the parent and the child and also how the parent perceives his/her child in terms of the assessment. Does the assessment represent something significant to the family? If yes, this could indicate that support may be understood as another form of pressure rather than as support per se (Peleg et al., 2016; Putwain et al., 2010).

To sum up, to understand the psychodynamics of the influence of parents on children's and adolescents' TA, it is important to consider the significance of the test to parents in different cultures and contexts and students' perceptions of the consequences of the test. If students perceive the test to be important, it could trigger TA. Here, culture is influential. For example, in a collectivist culture, the status of the family is derived from the performance of the students and who pays tuition (the family or the self) (Lowe, 2021c, 2022b). Thus, the educational setting (e.g. the cost of education) could play a critical role in understanding the influence of parents' and university students' perceptions on TA.

2.4.5 Individual factors

While there is theoretical recognition that different contexts shape a person's growth and development in varying ways, Bronfenbrenner (2005) also emphasised the prominent role of the individual's genetic, biological aspects and agency interacting within multiple

levels of the person's ecological system. This is highlighted by the addition of the term "bio" to the bioecological framework. For instance, age is associated positively with TA (Chapell et al., 2005; DordiNejad et al., 2011), as is gender, with women consistently reporting more TA than men (Huntley et al., 2022; Liu et al., 2021; Putwain & Daly, 2014; Von der Embse, 2018).

In the mental health literature, anxiety disorders are mostly associated with biological and genetic familial factors (Moller et al., 2015). Research suggests that approximately 30–50% of anxiety is caused by genetic predisposition (e.g. Borelli et al., 2015; McClure et al., 2001). TA is no exception. It is considered a situation-specific trait and students with elevated levels of anxiety will show higher levels of state anxiety in evaluative situations (Bertrams et al., 2010; Endler & Kocovski, 2001; Lotz & Sparfeldt, 2017; Segool et al., 2013). When conceptualized as a trait, TA is perceived as a genetic factor because individual students are genetically predisposed to find examinations anxiety-provoking (Bertrams et al., 2010; Endler & Parker,1990; Spielberger, 1980, 1966; Zeidner 2014).

2.5 Criticism of Bioecological Theory

There are three noted criticisms of bioecological theory that are applicable in this research context. This research focused on postgraduate students in three different contexts (local Saudi students, UK students and international students in the UK), not children studying in a local context (Tudge et al., 2009). Thus, the theoretical space must underline the differences between a child who is reactive and whose human development is highly dependent on external factors in the environment and an adult who can take decisions to alleviate (or exacerbate) the effects of factors influencing TA symptoms and academic outcomes. In addition, it is necessary to theorise the role of the change experienced by the student sojourn moving from one macrosystem, exsosystem, mesosystem and microsystem to another country that is completely different. Bioecological theory focuses on the local context and has little to say in terms of the possible effects in the students' sojourn when moving across contexts (Elliot et al., 2016a, 2016b), as will be detailed in 2.5.2. The third limitation is the lack of consideration of the psychological factors influencing the person, as addressed in 2.5.3. Here, biopsychosocial theory compensates for this weakness and provides a space to study not only biological factors, but also mental health aspects, considered in the analytic framework in 2.6.

2.5.1 The agency role

The first criticism of bioecological theory is that the individual is perceived as reactive and his/her behaviour, attitude or development are outcomes of macrosystem, microsystem and mesosystem influences (Christensen et al., 2016; Donelli & Matas, 2020). Even putting the individual at the centre of the nested circle and representing bi-directional effects, the focus is on genetic factors that could influence those in the person's close circle and that might later affect him/her in return (Donelli & Matas, 2020). This research differs from the original conception of bioecological theory, which assumes the person is completely captive to the effects of the surrounding environment because the subject under study is not children in an earlier developmental stage but on postgraduate students who can take actions to influence the system and reduce the effects of TA. Namely, the thesis focuses on adults studying at university, whose discretionary decisions are important to their survival and who can reconfigure their interpretations of themselves and society (Christensen 2016). Here, the person's actions in managing TA symptoms are not part of the aspects of bioecological theory previously discussed simply because TA is assumed to be an outcome of the surrounding environment and the person does not have a hand in reducing it (Christensen, 2016).

Researchers in the context of TA have argued for integrating resilience activities (i.e. coping strategies) in the theoretical framework to explain variations in TA and its outcomes (Engler, 2007; Miller, 2008). Resilience activities are manifestations of a belief in a bright future and a sense of purpose, including goal direction, persistence, achievement motivation, optimism and hopefulness (Benard, 1995; Engler, 2007). Resilience is partly genetic (Benard, 1995; Engler, 2007; Hofgaard et al., 2021; Niitsu et al., 2019), and it has been argued that these inherited capacities could play a role in shaping a person's development of TA. From birth, individuals possess some level of adaptability and resilience, represented in attributes such as social competence, a sense of purpose, problem-solving skills, autonomy, and critical consciousness (Benard, 1995; Engler, 2007). However, resilience can be diminished due to traumatic events (Connor, 2006) or as a result of bioecological factors that influence human development. These bioecological factors refer to how environmental influences can affect gene expression without changing the underlying DNA sequence, a process known as epigenetics (Smeeth et al., 2021).

Nevertheless, this does not mean the person is entirely an outcome of trauma and disabled by it. Resilience activities could be directed to reconfiguring or training the person through counselling and the adoption of coping strategies (Burton et al., 2015). Christensen (2016) contended that TA could be alleviated by seven Cs: coping, competence, connection, character, confidence, contribution and control (Agbaria & Bdier, 2020; Jing, 2007; Krispenz, 2019; Lang & Lang, 2010; Putwain & Daly, 2016; Putwain et al., 2010; Thomas et al., 2017; Vanstone & Hicks, 2019). This, Christensen (2016) argued, is in contention with Bronfenbrenner's (1979, 1994) theory as it only defines the deleterious effects on a human's growth if subjected to trauma and adversity. Thus, bioecological theory is deficient as it does not offer a way of conceptualising how an individual brought up in a negative environment becomes successful and survives.

Therefore, this thesis theorises coping strategies as mechanisms that can alleviate the experiences and effects of TA (Putwain et al., 2016; Thomas et al., 2017). i.e., this research argues that the current bioecological model lacks a framework for conceptualizing the proactive strategies individuals employ to cope with adverse circumstances. This is where the concepts of agency and resilience intersect, as they relate to how individuals navigate and respond to their environments. This thesis introduces coping strategies as mechanisms that mitigate the negative impacts of TA. Coping strategies can be seen as expressions of agency—they are the ways in which individuals exert control over the stressors in their environment. In the context of the bioecological model, these strategies could be influenced by interactions within and across the various environmental systems.

Coping refers to the processes involved in an individual's reactions that might alleviate or exacerbate anxiety symptoms in response to the perception of threatening/evaluative pressure (Folkman & Lazarus, 1985; Zeidner, 1995). Coping strategies form a constellation of disruptive, avoidance, or adaptive behaviours that learners use in response to their individual interpretations of internal personal and external societal threats they face regarding assessment requirements and its consequences (Fletcher & Cassady, 2010). Prior research has found that coping processes may have positive or negative mediating effects between TA and other psychological constructs, such as emotional intelligence and academic performance (e.g., MacCann et al., 2011; Vanstone & & Hicks, 2019; Zatz & Chassin, 1983). There are four different types of coping strategies that could alleviate or exacerbate TA symptoms and their effects on academic

performance: task-based strategies, emotion-focused strategies, seeking help (counselling) and counterproductive coping strategies.

Task- or problem-focused processes

The first type of coping strategy believed to have an alleviating effect on TA, reducing its negative effects on performance, is task- or problem-focused (Dyson & Renk, 2006; McNamara, 2000; Sasaki & Yamasaki, 2007; Struthers et al., 2000). Such strategies are defined as active behavioural responses aimed at adapting to and managing sources of stress through planning, active coping and suppression of competing activities (Folkman & Lazarus, 1985; Putwain et al., 2016; Zeidner & Saklofske, 1996). This type of adaptive strategy directs students' attention towards examination preparation activities, such as setting tasks, avoiding procrastination and ensuring they study lesson by lesson, not leaving work until the last minute. The suppression of competing activities entails putting other activities (e.g. social or entertainment) to one side and concentrating on the forthcoming examination (Krispenz et al., 2019; Stöber, 2004; Thomas et al., 2017; Xiao, 2013).

The importance of problem-focused coping strategies is highlighted in the literature. Thomas (2022), in a study of 482 university students, found that task-focused coping strategies mitigated worry and also reduced the outcomes of maladaptive coping strategies (e.g. test-irrelevant thinking), fear of social derogation and bodily symptoms. In addition, Romera and Fuente (2021) found the capacity to self-regulate was associated negatively with TA, which they ascribed to the person being able to set action plans and direct his/her emotions and efforts towards the examination.

However, the value of this type of coping strategy has been questioned. While Matthews et al. (1999) found a negative relation between problem-focused strategies and worry, Arana and Furlan (2016) found a positive association and others (e.g., Putwain et al., 2012; Stöber, 2004) found no relation. One of the reasons proposed for the latter result was that the studies measured the relationship between trait TA, not state, and coping strategies, which do not differentiate between the pre, during and post phases of testing (see Zeidner, 1995, 1996). Second, the positive and negative relationships found could be due to the context. Those who found positive relationships conducted their studies in a certain environment with clear assessment deadlines and clear assignment instructions (Stöber, 2004), while those who found negative relationships were examining contexts with vague guidelines and more coursework (Al- Gamal et al., 2016; Hassanein et al., 2016; Matthews et al., 1999). Problem-based coping strategies do not improve resilience;

they give the impression of control, which could be threatened if the environment is not sufficiently stable in the students' eyes. Despite the lack of consistency in the findings regarding the effects of problem-focused strategies on TA, they play an essential moderating role between TA and improved academic performance, unlike emotion-based strategies, which have a deleterious effect on academic performance (MacCann et al., 2011, 2012; Thomas et al., 2017; Zepp et al., 2018).

To sum up, task-focused coping strategies, such as setting tasks, setting targets and working on them, avoiding procrastination and studying lesson by lesson on time and not leaving work until the last minute are found in general to be useful in alleviating TA symptoms and also reducing the effect of TA on academic performance. However, task-focused strategies may not be effective in all contexts and could increase anxiety if the student perceives the environment to be highly ambiguous.

Emotion-focused processes

The second type of coping strategy focuses on regulating the person's emotions concerning the assessment (Cassady & Boseck, 2008). This strategy aims to suppress significant thoughts which trigger fear, panic or anxiety. Emotional regulation refers to one's capacity to access, examine and manage (reduce or increase) emotive reactions (Gross & Thompson, 2007; O'Driscoll & McAleese, 2022). Emotion-focused coping strategies essentially operate by reconfiguring the person's perceptions and beliefs related to the assessment and the self and the negative perceived consequences of the assessment (Austin et al., 2010). However, they generally aim to reduce anxiety without focusing on the cause (e.g. meditation, relaxation tools and substance use). The coping strategies used to regulate fear of the assessment and its perceived consequences include positive reinterpretation and growth (e.g. acceptance, religious coping and venting emotions) and techniques to reduce tension (e.g. meditation, mindfulness activities, relaxation techniques, humour and substance use) (Calkins & Hill, 2007; Campbell-Sills & Barlow, 2007; Cisler et al., 2010; Cole et al., 1994; Huffman et al., 2022).

There is evidence that techniques for reducing tension, such as mindfulness, are effective in reducing TA symptoms and result in improved assessment performance (Huffman et al., 2022). Lai's (2006) study of 38 nursing students found that playing music during the exam significantly reduced their TA. However, other researchers have found that sustained use of emotion-focused coping strategies to reduce tension is associated negatively with academic performance (Khan, 2013). The reason could be suppression of the main cause of the problem, namely self-perception and the perceived threat from

the assessment (Gross & John, 2003; Srivastava et al., 2009). At the same time, researchers have found that emotion-focused strategies which reconfigure the students' perceptions have beneficial effects on TA (Cho et al., 2016; Fishstrom et al., 2022). This argument has theoretical support because the cognitive reappraisal of the self and assessment threats involves re-evaluating a situation optimistically to change how it affects the person's emotions, while expression suppression involves inhabiting the emotional expression (Fishstrom et al., 2022; Gross, 1998). It has been found that reappraising stressful events improves positive affect while reducing negative affect (John & Gross, 2004).

In brief, emotion-based coping strategies focus on reconfiguring the interpretations and perceptions of the examination and its consequences. There is some empirical evidence in support of such strategies, but it seems that not all students can engage in the activities without external help. Moreover, the coping strategies differ: some focus on reducing anxiety through relaxation, while others focus mainly on reconfiguring beliefs. The former can be done individually, while the latter may need to be managed through professional counselling services (detailed in 2.9.1). There is still no clarity in the literature concerning whether the effectiveness of applying emotion-based strategies is the same in different cultures (e.g. religious vs secular, collectivist vs individualist) and/or different contexts (e.g. where it is normal to seek professional counselling services vs being shamed by society for doing so). The existing literature has tended to focus on Western, secular and individualist environments, while hardly any evidence has been forthcoming from religious and collectivist cultures (Turner & Llamas, 2017).

Counterproductive coping strategies

The third type of strategy is engaging in counterproductive coping behaviours such as irrelevant activities to escape psychologically from facing fears related to the test (Billings & Moos, 1981; Parker & Endler, 1996). For instance, Thomas (2017), Putwain et al., (2016) and Zeidner and Matthews (2005), found that worry was related positively to avoidance coping strategies, such as avoiding lessons or tutoring, which could enhance examination-relevant skills and they were not able to concentrate on their studies.

The strategies here include avoidance of studying or attending lectures and instead seeking out entertainment or shopping and engaging in self-blame (Putwain, 2019; Salam et al., 2019; Zeidner & Matthews, 2005). These kinds of maladaptive coping strategies

exacerbate negative emotional outcomes and lead to poor academic performance (Austin et al., 2010; Dyson & Renk, 2006; Thomas et al., 2017). Such strategies translate into procrastination, creating a situation that negatively impacts academic performance (Martin, 2007; Martin et al., 2001). The strategic withdrawal of academic effort and avoiding practising skills or participating in test preparation (Putwain, 2019) are self-disabling behaviours that aim to protect a person's sense of self-worth from expected failure through deflection and distraction (Covington 2009). Putwain (2019) conducted a study of 273 students in the final stage of secondary education in England and found that self-handicapping activities, as a psychological escape from the test or avoiding opportunities to practise or improve, significantly affected students' academic performance and exacerbated the symptoms of TA. Procrastination is among the most common strategies, reflecting the strategic withdrawal of anticipated academic efforts (Blunt & Pychyl, 2000; Jonbeshi & Abolmaali, 2017; Khezrabadi et al., 2021).

To conclude, counterproductive coping strategies can translate into procrastination, which is said to be increased by TA and leads to lower academic performance and an inability to cope with academic requirements.

Seeking psychological Counselling

Following the transactional stress and coping framework (Lazarus & Folkman, 1984), TA coping strategies are based on a biopsychosocial model in which cognitive appraisals and the personal preferred coping strategy to manage the perceived threats of assessment are affected by both personal characteristics and environmental factors (e.g. emotional intelligence, personal characteristics, challenging tasks, social pressure and the academic environment) (Lazarus, 1993a, 1993b; Lazarus & Folkman, 1984, 1987). However, such models do not incorporate counselling services that could reconfigure a person's interpretations of the self-versus perceived threats using external professional agents (psychological therapists or psychological counsellors) and the adoption of scientific-based interventions directed by professional counsellors. The option of professional counselling is not reflected in the bioecological framework in terms of understanding the development of TA, nor is it part of the biopsychosocial model defining coping strategies.

This research proposes that counselling is an important component in the framework for understanding the development of TA and its consequences for academic performance. Counselling is defined as "a professional relationship that empowers diverse individuals,

families, and groups to accomplish mental health, wellness, and educational goals" (Kaplan et al., 2014, p. 368). Various counselling methods can be effective in reducing TA, such as solution-focused brief counselling (Altundağ & Bulut, 2019) and cognitive behavioural counselling programmes (Saadoon, 2022). Moreover, it is possible to improve students' academic performance (Choi et al., 2010) by reducing negative thoughts and distractions, incorporating study habits, study skills, mindfulness and time-management (Damer & Melendres, 2011; Quinn & Peters, 2017) and improving self-esteem, while alleviating TA (Putwain & von der Embse, 2020). Jobby and Viswason (2018) found stress levels decreased significantly for 69 university students who received counselling services over one month. In a semantics study that analysed over 10,000 university students, Lee et al. (2009) found that using counselling services improved retention and academic performance, as well as reducing anxiety (Novella & Samuolis, 2022). Counselling can be offered through programmes and activities, such as mindfulness workshops. While group counselling seems to be more effective than individual counselling, both have been found to be effective for improving the capacity to organise work better and reduce the possibility of procrastination and bodily symptoms of stress (Nguyen-Feng et al., 2017; Putri et al., 2021).

Cognitive behavioural counselling services that offer practical calming strategies, aid in developing study skills and enable positive internal self-talk have been found to be successful in reducing TA among youth (Altundag & Bulut, 2019; Krispenz et al., 2019; Poorman et al., 2019; Putwain & Pescod, 2018). Despite the usefulness of counselling services, they are underutilised due to individual, cultural and institutional factors (AlHorany,2019; Cerolini et al., 2023). Perceived stigma can explain the reluctance to seek help from professional counselling service providers (Cerolini et al., 2023; Vogel, et al., 2007). Stigma is defined as the individual perception of the self and how society perceives the self as useful or destructive to the personal image when seeking help (Vogel et al., 2006). According to social identity theory, individuals define themselves and internalise the social and cultural norms of their group members, which become part of their subjective behaviours and attitudes, helping them establish meaning in the world and traverse interpersonal relationships (Rieber & Robinson, 2004, cited in Shea et al., 2019). Social stigma refers to the social perception that an individual who seeks help is socially undesirable (Komiya et al., 2000); self-stigma refers to an internalised sense of social undesirability and diminished self-worth (Vogel et al., 2007). Social stigma concerns perceived judgments from people in general, such as the community, wider family and neighbours (e.g. Vogel et al., 2017) rather than from specific groups of

people, such as close family or friends (e.g. Mo & Mak, 2009). While self-stigma prevails in individualist cultures (e.g. among European and US students), social stigma prevails more in collectivist cultures (e.g. among Asian and Latino communities) (Golberstein et al., 2008; Vogel et al., 2017; Zhou et al., 2019). Therefore, Latino Americans, comprising a collectivist culture in contrast to Americans, often seek assistance within their ethnic enclave for sources of support (family, clergy) and avoid counselling as much as they can (Akincigil et al., 2011; Brinson & Kottler, 1995; Cabassa & Zayas, 2007; Kearney et al., 2005; Turner & Llamas, 2017).

Social and self-stigma have been noted by many researchers as being key factors affecting the avoidance of counselling services (Gulliver et al., 2010; Lally et al., 2013; Vogel et al., 2006). In a recent publication, Kosyluk et al. (2021) reported on a study of 153 college students in the US and found that stigma and labelling avoidance were the key reasons for avoiding counselling services. Similarly, Pompo-Fargnoli (2022), with a sample of 352 undergraduate students from the US, reported that stigma and social desirability were the key demotivators for seeking professional help. Stigma could come from poor mental health literacy (Crowe et al., 2018) and a lack of awareness of the importance and meaning of attending counselling services (Gulliver et al., 2010). Mental health literacy refers to beliefs and knowledge about mental health issues, supports management, recognition and prevention (Jorms et al., 1997). Lack of awareness is one of the key drivers of stigma as predominant societal values view counselling as a sign of weakness rather than something normal and advisable to combat TA (Alomari et al., 2022; Gulliver et al., 2010). A significant body of research has found that mental health literacy is a key antecedent of help-seeking intentions (Battaglia et al., 1990; Paulus et al., 2009; Rickwood et al., 2004; Wei et al., 2013). This research investigates the individual and institutional factors driving help-seeking behaviours among those from collectivist societies studying in individualist societies (i.e. international students in the UK), as well as among students in their own countries.

2.5.2 International students and bioecological theory

One of the assumptions of bioecological theory is that the environment is relatively stable and there are no significant changes in the layers of influence that construct the person's sojourn (Elliot et al., 2016a). However, researchers have recently found that for students moving from one country to another, there could be disruptions in the sojourn due to changes in the layers of influence (Elliot et al., 2016a). For instance, moving from a collectivist culture to an individualist culture could lead to changes in the way the person

views his/her relationships with others (Li et al., 2016); this in turn could influence self and social stigma regarding TA and attending counselling services (Xiong & Yang, 2021). International students face cultural shock due to differences in the values, norms and beliefs between cultures (Maeshima & Parent, 2022).

The process of accepting and embracing the new culture is called acculturation (Berry, 1987), which refers to "a dual process of cultural and psychological change that takes place as a result of contract between two or more cultural groups and their individual members" (Berry, 2005, p. 698). Acculturation may result in "outcomes that can range from conflict and stress to harmony and effectiveness" (Berry, 2005, p 698). Individuals differ in their acculturation and adaptation experiences due to changes in the macrosystem, mesosystem and microsystem levels resulting from moving from one country to another (Berry, 2005). It could be argued that the sojourn serves as the facilitator for the co-existence of the two invisible, but powerful ecological systems (Elliot et al.,2016b). The sojourn incites disturbance at all levels as the sojourner grows into part of another ecological system, which necessarily affects the relationships formerly sustained with significant others in the mesosystem and microsystem. For example, the person's sense of identity and views of the self, peers and counselling services, achieved through relations with the macrosystem (e.g. religious, cultural and national values) and manifested through social behaviour (Bronfenbrenner, 1994) will be disrupted (Bronfenbrenner, 1994; Elliot et al., 2016b).

The changes resulting from sojourn abroad have been found to trigger mental health issues, such as homesickness, anxiety and likely TA (Elliot et al., 2016a; 2016b). Researchers have found that international students experience more TA because they are limited in their capacity to attend counselling services due to issues with acculturation, language barriers and differences in ethnic identity and help-seeking norms (Berry, 1997; Marbley, 2011; Parr et al., 1992; Sue & Sue, 2013). In addition, other factors extrapolated from this research, such as cultural expectations and transition could be useful perspectives in investigating the triggers of TA for international students. This is studied in-depth in the qualitative study (see Chapter 7).

An interesting example is the role of religiosity among Latino students when studying in the US. Turner and Llamas (2017) found that Latino students are strong believers in God and believe that anxiety is a result of God's will; being closer to God could solve their

problem without the need for professional counselling. Similar to Muslims in Saudi Arabia, they believe that one's fate is in God's hands and thus illness is viewed as a test from God that must be endured (Falicov, 2014). Studies have suggested that Latinos may turn to religion or spirituality to cope with anxiety (Moreno & Cardemil, 2013), which could be similar to Saudi Arabia, but there is limited empirical evidence to support this analogue. In addition, because Latino students are collectivist by nature, they will likely seek support from parents and family rather than professional counsellors (Shea et al., 2019). Similarly, Martinez et al. (2020) found that Filipino students coped with their TA by being closer to their family and feared counselling would be damaging to their image in their surroundings (i.e. public stigma), even when studying in an individualist country like the US.

It is not always the case that students from collectivist cultures who experience TA and are unable to cope will be resistant to help. A body of work has shown how acculturation to the host culture in the US helped improve awareness of counselling services among international students (Hyun et al., 2007; Russell et al., 2008), enabling them to learn coping techniques and helping some perceive counselling as acceptable rather than a risk to face (Frey & Roysircar, 2006; Lee et al., 2014; Onabule & Boes, 2013; Yakunina & Weigold, 2011).

Investigating local and international students and TA in light of bioecological theory is novel in the literature. How international students (moving from a collectivist society to an individualist one) experience TA and how they might cope with this change and TA has not previously been studied. Thus, the qualitative research aimed to address these issues and develop a model to shed light on aspects of TA typically facing international student sojourners.

2.5.3 Mental wellbeing and bioecological theory

There are distinctions between bioecological theory and biopsychosocial theory in terms of their treatment of the social system and psychological factors. Lowe et al. (2008) used biopsychosocial theory to explain the factors predicting TA. They classified these into biological factors (e.g. intelligence and academic ability), psychological factors (e.g. trait anxiety, self-efficacy, social-emotional functioning and study skills) and social system factors (e.g. community, parent/family and school influences). The social system is too large to be applied in most studies but breaking it down into the layers of bioecological

theory, as in this study, aids analysis. The other difference lies in the embedding of psychological factors and wellbeing (e.g. Kranzler et al., 2020). This research integrates psychological factors as exploratory variables in the quantitative study aimed at comprehensively understanding participants' well-being and their lived experiences with TA in qualitative chapters, across four groups: local British students, local Saudi students, and European and Eastern international students in the UK.

Studies of psychological factors such as depression, anxiety, stress (DAS), and sleep quality are limited in the literature examining TA. These psychological factors play a significant role in individuals' perceptions and their ability to cope with external threats (Böke et al., 2020; Cooper et al., 2020; Grant et al., 2013; Joormann & Stanton, 2016; Masiran et al., 2021; Sawhney et al., 2020). Due to the nature of this research, which focuses on examinations and academic performance, these psychological factors could serve as exploratory variables in the quantitative chapter and in investigating lived experiences in the qualitative chapters. It has been proposed that the relationship between TA and psychological wellbeing is bi-directional (Hembree, 1988). TA threatens feelings of identity, self-worth, self-efficacy and personal and career goals (Putwain, 2009). Arora (2021), in a study of 434 higher education university students in India, the US, Russia and Malaysia, found that TA influenced students' self-efficacy as it induced an undervaluation of their self-perceptions that they could cope with the assessment requirements. Steinmayr et al. (2016) found that youth with higher TA reported lower life satisfaction and fewer positive emotions, reflecting their low subjective wellbeing. Due to these significant effects on self-worth, TA could lead to clinical anxiety (Herzer et al., 2014) and burnout (Fernández-Castillo, 2021). Moreover, it could lead to generalised anxiety and phobias (Jacobson & Newman, 2017; Kavakci et al., 2011; Leadbeater et al., 2012).

TA could increase the experience of panic attacks because it threatens the personal identity and sense of worth in the family and among peers, affecting cognition (e.g. exaggerating thoughts about the consequences of examination failure) and physiology (e.g. nausea and elevated heart rate) (Segool et al., 2014). In addition, issues with mental wellbeing trigger TA. The extant literature has shown that depression (Akinsola & Nwajei, 2013; Bashir et al., 2019), anxiety (Kumari & Jain, 2014; Popko & Klingman, 2002) and stress (Rajiah et al., 2014) present consistent positive correlations with TA and Rajiah et al. (2014) also found that TA predicts stress. If a person is under stress or experiencing anxiety, perceptions of threat are exaggerated and have deleterious effects

in terms of inducing TA (Putwain & Daly, 2014; Shahab et al., 2021). Research also has shown that sleep quality significantly affects cognitive function, emotional regulation, and overall mental health (Okano et al., 2019; Scott et al., 2021) Poor sleep, as measured by tools like the SCI, can exacerbate anxiety levels, including TA. Conversely, high levels of anxiety, including TA, can disrupt sleep patterns, leading to a cyclical relationship where anxiety impacts sleep and poor sleep further heightens anxiety ((Barmeh Ziyar et al., 2016; Deliens et al., 2014; Gobin et al., 2015; Hamilton et al., 2021; Minkel et al., 2012; Zenses et al., 2020).

To sum up, it is important to investigate depression, anxiety, stress, and sleep quality as exploratory variables in the quantitative study aimed at comprehensively understanding participants' well-being and their lived experiences with TA in qualitative chapters.

2.6 Analytic Framework

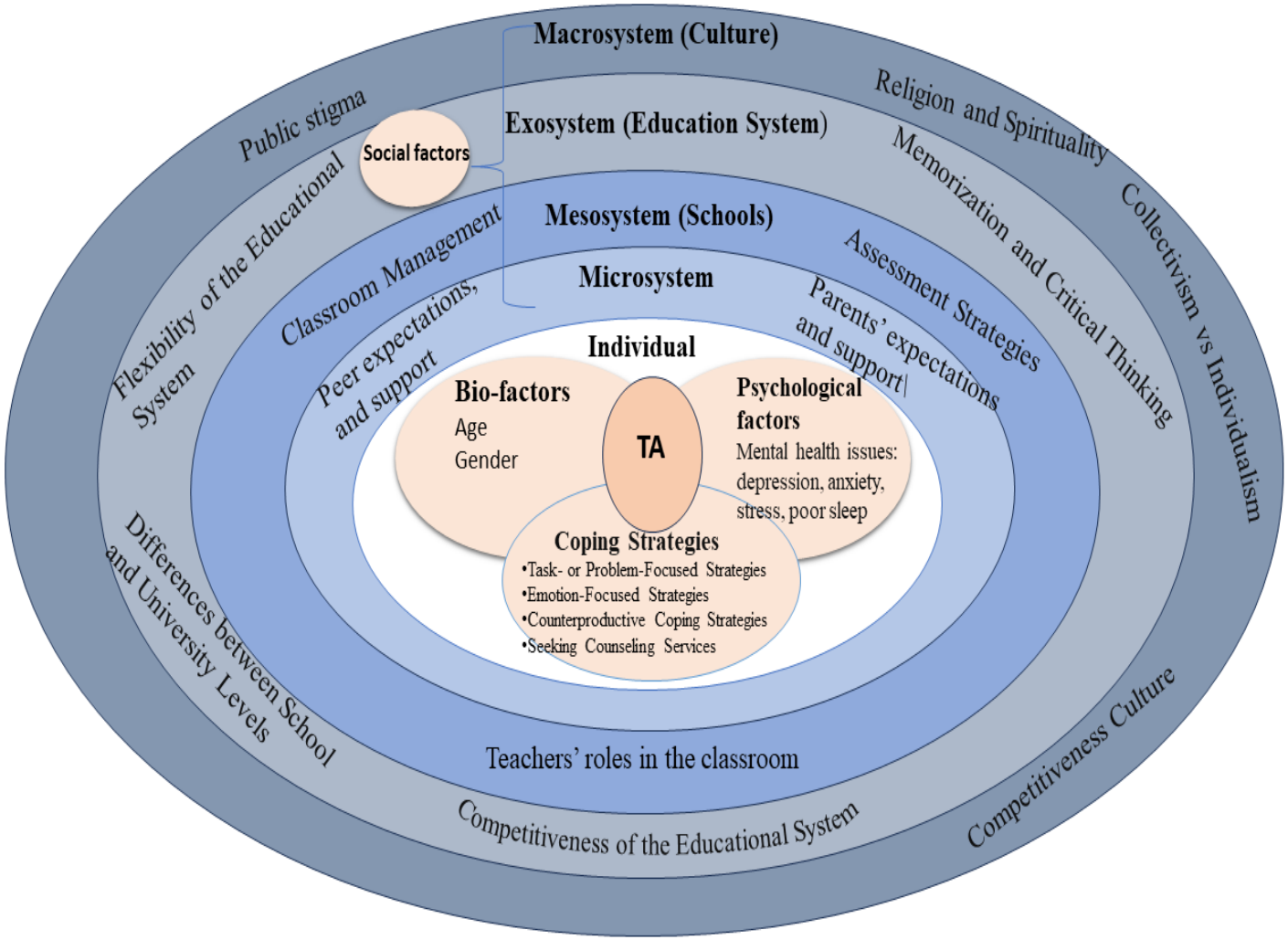
The bioecological and biopsychosocial theories complement each other in important ways, considering the influence of the individual and the context to varying degrees. The bioecological theory conceptualises how complex contextual factors related to individuals influence them, helping provide an understanding of TA and differences in experiences between students from different cultural backgrounds. In contrast, the biopsychosocial model of TA primarily focuses on intrapersonal interactions that lead to the development and expression of TA. It provides a sound framework that integrates the various biological, psychological and social variables which cause and influence TA, helping provide an understanding of the complexity of the phenomenon.

The main weakness of bioecological theory lies in looking at personal behaviour as primarily reactive, rather than exploring the possible formation of coping or positive strategies to rebalance the individual's situation in the environment (Christensen, 2016). Thus, while this research considers the layers of effects in bioecological theory, it also argues that personal behaviours could be a remedy for potentially negative outcomes (i.e. coping and help-seeking behaviours). This positive perspective is underpinned by the biopsychosocial framework developed by Engel (1977), representing mental health issues as the result of interactions between three spheres: biological factors, social factors and psychological factors (including coping strategies). The framework was later adapted by Lowe et al. (2008) to understand the antecedents and drivers of TA.

This research merges the two perspectives. It portrays the outer layer as the macrosystem level, comprising the cultural factors in the environment that could shape students'

perceptions of academic assessment and examinations and possibly generate TA; the second layer is the exosystem, primarily the educational system and its policies and regulations. The third layer is the mesosystem, comprising assessment styles, the teachers' relationships with their students and other related factors. The fourth layer is the microsystem, which includes societal values in general and those endorsed by family and peers at the individual level. The inner layer, based on the biopsychological perspective, comprises the individual factors made up of biological, psychological and coping strategies. The synthesis of literature on the factors underlying the development of TA in cross-cultural research is illustrated in Figure 2.1.

Figure 2. 1 Synthesizing Factors Identified as Influential in the Development of TA in Cross-Cultural Research



2.7 Summary

This chapter has illustrated the role of the macrosystem, exosystem, mesosystem, microsystem and individual factors influential in developing TA in different contexts and cultures. No previous published research has integrated them in a single analytic framework. This research adapts bioecological theory, originally developed for children, to the context of university students' development of TA. This review has highlighted six limitations in the literature. The first concerns macrosystem factors. It is known that culture plays a significant role in developing TA (see 2.4.1), but there is a lack of understanding of how students brought up in one culture and doing a university degree in another culture experience TA. Specifically, there has been no investigation of the dynamics of TA for students moving from a collectivist, conservative and religious culture like Saudi Arabia to an individualist, non-religious culture like the UK. This is explored through qualitative, in-depth interviews with students from Eastern countries living in the UK.

The second issue concerns aspects related to the exosystem in terms of the role of educational policies and guidelines. Differences in educational contexts, for example the level of competitiveness in the educational system and the transition from high school to university, require in-depth investigation. There is evidence in the literature for students moving from Latin America and from China and Singapore to the US; however, there is still a gap in qualitative evidence regarding how these students interact with and experience differences in the educational systems which may increase or alleviate the symptoms of TA. This thesis employs qualitative interviews to explore students' experiences of TA and reflect on the potential influence of moving from a competitive education system focused on memorisation (e.g., China and Saudi Arabia) to a less competitive environment focused on critical thinking (the UK).

The third issue relates to the mesosystem level, in which the role of the interaction between students and educational practices in inducing TA requires further investigation. It is known that different types of assessment and the relationship between the students and teachers can influence TA symptoms. Due to the inconclusive evidence in the literature, this study conducted a systematic review research to obtain evidence of the role of differences in assessments in influencing TA. Moreover, in-depth interviews were conducted with local Saudi and British students, and with Saudi and Eastern international students in the UK to gain an in-depth understanding in-depth the role of assessment

type, and how transition from one country to another could influence the experiences of TA.

The fourth issue relates to microsystem aspects and the role family plays in the development of TA. It is known that parents are a major driver of students' experiences of TA. However, when students travel abroad, this influence may change. There is a lack of evidence in the literature concerning how students moving from an Eastern culture, where the relationship between parents and their children is very close, to a Western culture, where they may be removed from the immediate influence, could influence the experience of TA. The comparison between the SA students, UK students and those movers from East to West aimed to provide insights into the dynamics of the interaction between parents and students in experiencing TA through analysis of in-depth interviews.

The fifth issue concerns individual factors, rooted in the adaptation of the biopsychosocial framework. The academic literature has evidenced the role of psychological factors and coping strategies in managing TA, while bioecological theory assumes that genetic and biological factors are key and that the human position is an outcome that is built in genetically. The application of biopsychosocial theory compensates for the limitation in understanding the individual, as psychological factors and coping strategies play a significant role in the development of TA. Coping strategies have previously been investigated in the literature, the role of coping strategies in mitigating TA across cultures and particularly for students from religious, collectivist societies, sceptical about counselling moving to a non-religious, individualist society willing to access counselling was investigated in depth through qualitative research.

The last issue is the integration between the macrosystem, exosystem, mesosystem, microsystem and individual factors in a single project. This research contributes to the body of knowledge by highlighting the interaction between the different layers to attain an understanding of the development of TA and differing experiences in cross-cultural contexts.

Chapter 3. Methodology

3.1 Introduction

This chapter defines the research paradigm, strategy, methods, and analytical techniques employed to address the research questions, aims, and objectives. The chapter commences by explaining the research paradigm and strategy (sections 3.2 and 3.3). Subsequently, it presents the method for each phase: systematic review (section 3.4), survey study (section 3.5), and semi-structured interview (section 3.6), including the rationale and construction, participant recruitment strategies, participant information, data collection procedures, and the validity, reliability, and trustworthiness of the methods, as well as an outline of the data analysis techniques employed. Finally, it addresses ethical considerations.

3.2 Research Paradigm

A research paradigm is fundamentally defined as the set of philosophical underpinnings that guide research activities (Tashakkori & Teddlie, 2010). Paradigms shape a researcher's view of reality" is widely supported within the field of philosophy of science, particularly influenced by the work of Thomas Kuhn. Kuhn's seminal book, "The Structure of Scientific Revolutions" (1962), introduced the concept of scientific paradigms and argued that they play a crucial role in shaping how scientists perceive, interpret, and research their subjects (Orman. 2016).

The selection of an appropriate paradigm for a study is based on its research question, aims, and objectives. This study's research question explores the "what" and "why" of test anxiety's variability across different cultures and educational contexts. Paradigms shape a researcher's view of reality, encompassing ontology (the nature of reality), epistemology (how reality is understood), and axiology (the values inherent in the research work) (Tashakkori & Teddlie, 2010).

There are two primary paradigms: positivism and interpretivism, each with distinct ontological, epistemological, and axiological positions (Tashakkori & Teddlie, 2010). Ontologically, positivism posits a universal, external reality, unknown by individuals and deduced through literature or experimentation (Gelo et al., 2008). Post-positivism is similar to the positivist with one key difference which is the generalisation is defined based on boundaries such as country, culture, and or sector (Tashakkori & Teddlie, 2010). In contrast, interpretivism adopts a relativist and internal view, positing that reality varies between individuals and is inherently known to them (Gelo et al., 2008).

Applying these definitions to the study's research question, it appears both paradigms are applicable. TA is highly individualistic, varying based on personal life experiences and contextual factors. This study suggests TA is a relativist experience, shaped by bioecological and biopsychosocial factors (Bronfenbrenner, Lowe, 2008). Thus, understanding individuals' experiences and the drivers of these experiences requires an interpretive ontological stance. However, there are also universal factors across contexts, such as specific educational system rules or cultural values, which align more with a post-positivism ontological stance (Creswell & Creswell, 2017).

Epistemologically, positivism advocates for a rationalist, deductive approach, where theory guides propositions tested on large samples (Creswell, 2009; Gelo et al., 2008). Interpretivism, on the other hand, emphasizes understanding reality on a case-by-case basis, termed the social construction of reality (Creswell, 2009; Gelo et al., 2008). This research adopts both stances: it posits that individual factors universal across contexts can guide proposition development, aligning with positivism, while also emphasizing the interpretive understanding of participants' perceptions and experiences.

Axiologically, the positivism paradigm stresses objectivity and separation between the researcher and the research, to ensure results' independence and trustworthiness (Creswell, 2009; Gelo et al., 2008). Interpretivism, in contrast, acknowledges the inevitability of the researcher's influence in understanding respondents' contexts (Creswell, 2009; Gelo et al., 2008). This study adopts both axiological stances, recognizing the potential biases and employing strategies to mitigate them. The positivist approach is used in testing DASS, TA, employing quantitative methods and systematic reviews. Concurrently, interpretive methods are used to understand participants' test anxiety experiences, employing techniques like self-reflexivity to maintain research integrity.

In conclusion, this research does not adhere strictly to conventional paradigms but rather integrates elements of both. This approach aligns with the pragmatic research philosophy, which advocates for mixing paradigms and methods to enhance research value and credibility (Gelo et al., 2008; Creswell & Creswell, 2018). Pragmatic research seeks to balance the generalizability and theory confirmation of positivism with the in-depth, case-by-case analysis of interpretivism, thereby enriching the research findings (Tashakkori & Teddlie, 2010). This approach will be elaborated in the research strategy section (3.4).

3.3 Research Strategy

This study is guided by two distinct research questions, further delineated into three research objectives. The nature of these objectives necessitates a diverse methodological approach, as illustrated in Figure 3.1 below.

Two research objectives investigate the variances in test anxiety (TA) levels across different cultures in various contexts. To quantify these differences, a structured survey employing quantitative methods will be implemented. This approach allows for the assessment of the significance of these variances across cultural contexts. Complementing this, a systematic review of existing literature will provide a comprehensive overview of statistical differences and associations between TA and type of assessment. The integration of survey findings with systematic review results aims to provide robust evidence, enhancing the representativeness and generalizability of the findings (Creswell & Creswell, 2018). The first, therefore, involve exploring the differences in TA levels across cultures.

The research objectives that address coping strategies for reducing TA across cultures, the complementation of the interviews and survey will be adopted. Due to the inherent diversity and complexity of coping strategies in cross-cultural research, these are explored through open-ended survey questions and interviews.

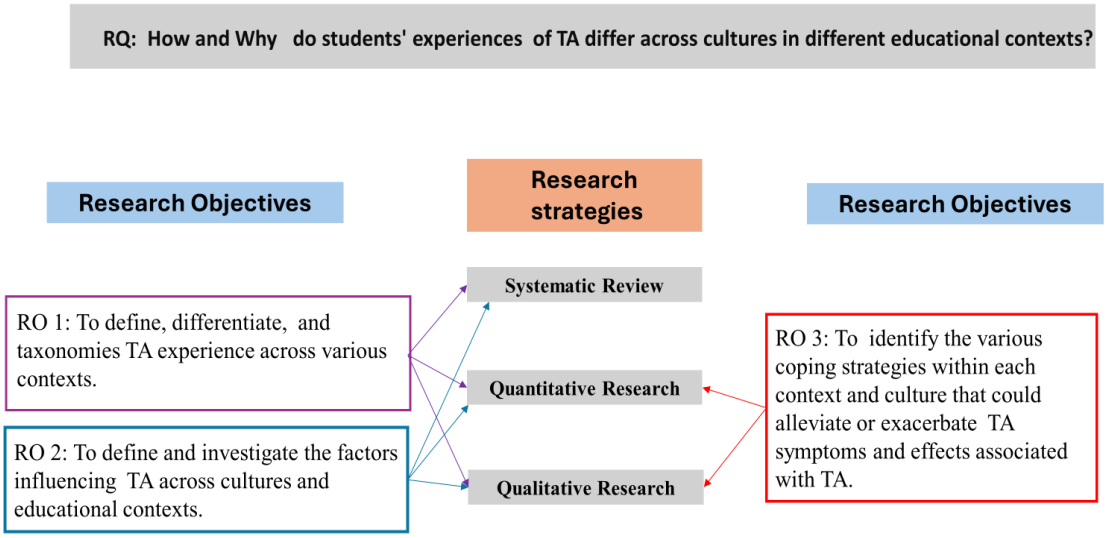
For addressing the research objective that involves identifying TA symptoms across cultures, systematic review, survey and interviews results are compared and contrasted. While the systematic review will highlight differences in assessment measures, the survey, utilizing a widely cited measurement tool, may not encompass all possible symptoms or explore new ones. Therefore, qualitative methods will be employed to identify novel symptoms and understandings of TA, addressing the first research objective.

Regarding the research objective that delves into the reasons behind cultural differences in TA. This can be approached deductively, formulating propositions from literature for empirical examination (Creswell & Creswell, 2018), or through the establishment of an analytic framework guiding data collection, analysis, and interpretation (Creswell & Creswell, 2018). Given the unique context of this study—comparing international students from Eastern and European backgrounds in a Western setting with local students from the same regions—the research adopts the latter approach. The chosen analytic framework combines Bronfenbrenner's bioecological model (1979, 1994, 2005) with psychosocial theory (Lowe, 2008), considering the university students' international

context. This framework identifies five layers of influence: macrosystem, exosystem, mesosystem, microsystem, and individual aspects. The research adopts a qualitative approach to explore these dimensions, focusing on how participants perceive the world and how these perceptions translate into TA.

For the mesosystem, specifically the nature of assessments, a dual approach is necessary. The quantitative aspect will assess perceptual differences across contexts, while the qualitative aspect will explore individual interpretations of these assessments. This study employs both quantitative (to measure the mental health issues via DASS) and qualitative methods (to explore culturally or background-influenced relativist aspects).

Figure 3. 1 Research Methodology



3.4 Method 1: Systematic Review

The systematic review aimed to fulfil research objectives 1 and 2, identifying relevant studies that would respond to the research question and enabling presentation and summarisation of the key findings, as well as indicating gaps between the topic under study and the literature. The strengths of the method include the transparency of the search phases and mitigation of bias in selecting and identifying the literature (Garg et al., 2008). The PRISMA was applied as the methodological approach. PRISMA is a set of guidelines developed to enhance the accuracy and completeness of conducting and reporting systematic reviews and meta-analyses within the field of scientific research (Moher et al., 2009), also includes a checklist and a study flow diagram. PRISMA also ensures the quality of the review and improves the transparency of the review process,

for example in reporting the search strategies and inclusion and exclusion criteria. It also helps ensure the accuracy of reporting.

3.4.1 Search strategy

A systematic literature search was conducted using multiple databases, including Web of Science, MEDLINE, the Educational Resources Information Center (ERIC) via (EBSCOhost) and PsycInfo. The databases chosen for this study were selected because they are authoritative, specifically PsycINFO for psychology and ERIC in education. Web of Science is a multidisciplinary database that includes studies in the medical and social sciences, including humanities, and MEDLINE is a key database for health and medical studies, which were included as the initial search showed that most of the research had been conducted with medical, nursing and pharmacy students. The grey literature was not considered.

The search was conducted in July 2019. The search strategy was built in collaboration, the team comprising the researcher (me), Prof Stephany Biello and Dr Maxine Swingler and a research librarian at the UOG. The following search terms were used to identify relevant sources:

1. "Test anxiety" OR "Examination anxiety" OR "Test stress" OR "Examination stress" OR "Exam Anxiety" OR "Exam Stress"
2. assessment* OR test* OR exam*
3. College student* OR University student* OR Undergraduate* OR Postgraduate student* OR Graduate student* OR Master student* OR nursing student*
4. 1 AND 2 AND 4
5. 1 AND 3 AND 4

Quotation marks were used to search for phrases.

3.4.2 Inclusion and exclusion criteria

The inclusion criteria for the studies were as follows:

- Include original data.
- Employ a quantitative survey.
- Include at least one type of assessment (e.g., face-to-face examination, computer-based test)
- Measure and report TA statistics for the assessment type.
- Involve undergraduate students or postgraduate taught students in all countries (no restriction on demographic characteristics)

- Published in English
- Published between 2000 and 2019
- Peer reviewed articles only

The exclusion criteria were as follows:

- Systematic reviews
- Studies involving practical medical examinations.
- Books, projects, conference papers, conference abstracts and dissertations

3.4.3 Review process

The systematic review covers the period from 2000 to 2019, selected with a specific aim that aligns with current research practices. This timeframe highlights key research developments relevant to the present analysis. The selection of 2000 as the starting point aligns with the methodology used in other systematic reviews, facilitating comparison and connection with other studies (e.g., Von Der Embse et al., 2013; Shapiro, 2014; Burcaș & Creț, 2021). This consensus among scholars supports the suitability of the selected timeframe for conducting a systematic review that accurately represents the latest twenty years of academic research. Furthermore, 2000 is marked as an important year for the integration of technology into daily life, particularly with the increased use of the Internet, which has significantly changed educational practices and student behavior worldwide (Roger, 2000). As educational institutions increasingly adopted digital tools and online resources, the nature of exams also began to change. This makes 2000 a relevant starting point for my study, which aims to assess the level of TA in computer-based and paper-based exams.

I screened each study. In total, 1,309 papers were identified from the databases and 867 papers remained after duplicates were removed. During the screening process, 617 papers did not meet the inclusion criteria, leaving 250 for further determination of eligibility. A further 179 papers were excluded, resulting in 81 studies being included in the review (see Appendix A.1). Dr. Kirsten Russell (KR) independently assessed the eligibility of 35% of the studies included.

I performed data extraction independently with the aid of Dr. KR and Dr. Maxine Swingler, extracting the relevant information from the papers and coding the study characteristics. The extraction sheet included (1) the authors' names, (2) the year of publication, (3) the name of the journal, (4) the sample size, (5) the country, (6) the mean age of participants, (7) the educational stage of participants (undergraduate [UG]/postgraduate [PG]/mixed), (8) the scale used to measure TA, (9) type of

assessment, (10) GPA and exam scores, (11) test model, (12) differences between types of assessment, (13) correlation and effect of TA on GPA and exam or non-exam scores. (See Appendix A.2)

The risk of bias within the studies was assessed based on Kmet et al.'s (2004) comprehensive checklist for evaluating the quality of quantitative studies (see Appendix A.3). The tool comprises 14 criteria and provides an outcome score. It evaluates studies for different potential areas of bias, including the appropriateness of questions/objectives, study design, methods of participant selection, data collection, sample size, analysis (reporting of variance for the main results), controlling for confounding factors, results, and conclusion. Given that there were no treatment studies in the review, three criteria (5, 6, 7) were omitted relating to random allocation of participants to treatment group and blinding of investigators.

Each criterion was scored (2) for "Yes", (1) for "Partial yes" and (0) for "No". The total score ranged from 0 to 22. The summary percentage scores were calculated by summing the total score obtained across the applicable items and dividing by the total possible score (i.e. 22 – [number of "n/a" × 2] ×100). A low score indicated a high risk of bias, while a high score indicated a low risk of bias. I assessed the quality of all included studies and KR assessed 12% (10 articles); disagreements were resolved through discussion. The level of agreement for the 12% of articles peer evaluated was 100%.

For the Standard Quality Assessment Criteria, studies were assessed as "excellent" (scores of > 80%), "good" (70–79%), adequate (55—69%) and "low" (< 55%). The overall scores ranged from 55% to 91%. Of the 81 studies, 7 (8.6%) achieved scores > 90% and 37 (45.6%) were scored > 80% ("excellent"), 28 (34.5%) were "good" and 9 (11%) were "adequate". For the quality rating of the included studies, see Appendix A.4.

3.5 Method 2: Survey

Questionnaires are a technique widely used to study psychological attitudes, preferences and self-perceptions in the social sciences and psychological research (Bowling & Ebrahim, 2005; Verma, 2019). This study employed a survey for four reasons: accuracy of measurement, generalisability of the findings, honesty and integrity in a sensitive topic and inclusiveness of the respondents (Midanik & Drescher-Burke, 2010; Roopa & Rani, 2012; Stockemer, 2019).

First, quantitative surveys have the capacity to measure attitudes and feelings with a level of accuracy and significance (Verma, 2019). Quantitative methods maximise objectivity using statistics, numbers, and structure (Verma, 2019). Hence, a survey is appropriate to

assess the differences in TA, DAS and sleep disorder and procrastination in the four groups.

Second, quantitative methods offer the potential to generalise the results based on supportive and sufficient evidence (Midanik & Drescher-Burke, 2010). Questionnaires allow researchers to collect and explore large amounts of data at once, making it possible to examine multiple variables simultaneously and to determine whether there are differences between groups, as well as helping to generalise the results to a larger population (Midanik & Drescher-Burke, 2010). In addition, a questionnaire is a cost-effective means of reaching a large number of respondents within a relatively short timeframe (Roopa & Rani, 2012; Stockemer, 2019). In this study, the questionnaire offered an opportunity to assess the differences in experiences of TA, DAS and sleep disorder and procrastination for a larger sample and provide more generalisable results than could be achieved through interviews.

Third, when researching sensitive topics, a survey gives the freedom for respondents to declare their feelings without fear of judgment. A survey can be administered online and is self-reported, which reduces response bias and social desirability bias. Indeed, there is strong evidence that this method is less subject to social desirability bias than other data collection methods and it enhances privacy (Booth-Kewley et al., 2007; Kreuter et al., 2008; Poder et al., 2015). While administering questionnaires in a face-to-face setting can improve the validity of the responses since the researcher can help the respondents and ensure they are taking the process seriously, the presence of the researcher could conversely influence the participants and make them feel judged (Midanik & Drescher-Burke, 2010). An online questionnaire is impersonal and anonymous, which can reduce inhibition in the respondents (Booth-Kewley et al., 2007). This also helps to reduce the effects of stigma surrounding psychological distress and can ensure honesty and integrity in reporting experiences of TA or DAS and sleep disorder without fear of being judged by others.

Fourth, a survey is inclusive in that it addresses the issue of the sensitivity of the topic and potential difficulty in communication for international students. A questionnaire offers anonymity and equal opportunity for all participants, and they can check the questions carefully, making the data more accurate (Roopa & Rani, 2012). This research was undertaken with international students and the online, anonymous questionnaire helped reduce the language barrier. This makes the survey method very appropriate for investigating sensitive topics.

The following sections define the sampling and recruitment process, participants' demographic information, questionnaire design and analytic methods used.

3.5.1 Sampling and recruitment

Sampling is the selection of participants to respond to the research questions and objectives (Creswell & Creswell, 2017). There are various sampling techniques, such as random and convenience (Creswell & Creswell, 2017). Random sampling focuses on the representation of the population through picking a large sample at random to increase the probability of equal representation of the population, while convenience sampling focuses on cases that are convenient and appropriate for the research without seeking mass representation of the population (Creswell & Creswell, 2017). Random sampling techniques are predominantly used in epidemiological studies, in which representation of the whole set of cases is necessary, but this comes with a high budget (Bowling &Ebrahim, 2005). Convenience sampling concerns selecting cases that are convenient to the researcher in terms of the context, location and time (Gelo et al., 2008).

This research focused on postgraduate students in four different contexts: local Saudi students, local British students, and European and Eastern international students in the UK. As this study was being conducted in Scotland, it was more efficient to seek responses from students in Scotland and the North of England rather than those in the South. Also, as I am from Saudi Arabia, it made more sense to sample respondents from Saudi Arabia than the United Arab Emirates or Qatar, for instance. Thus, this research opted for convenience selective sampling to ensure the representation of each of the four groups; the process of sampling could continue until sufficient representation of the postgraduate students in each of the four contexts was assured.

Two online recruitment methods were used in this research. First, I approached module, programme and postgraduate heads to help circulate the survey in the UOG in the UK and UOH in SA. Second, I used student group forums on social media, including Facebook, WhatsApp, Telegram and Twitter, approaching potential respondents, and inviting them to complete the questionnaire. The period of data collection was from April 2019 to the end of May 2019, covering the beginning and the end of the examination period when the participants would likely be experiencing TA.

3.5.2 Participants' demographic characteristics

Appendix A.5, presents the demographic characteristics of the participants in the samples, defining the research boundaries. The European, Eastern and British students were clustered in the range 20–29 years old (79%, 67%, and 59%, respectively), whereas the Saudi students were relatively older with 57.6% in the range 25–34 years. The distribution of GPA scores differed according to the context. Most local Saudi students (86.9%) got close to full marks with a GPA above 18 and most local British students had a GPA of 15–17. The Eastern and European international students in the UK ranged from 15 to 22 (79.5 and 76.9%, respectively).

Regarding gender, most of the respondents in all four contexts were women: 67.3% of local British students; 71.2% of local Saudi students; 80.9% of the Eastern international students in the UK; 84.6% of the European international students in the UK. Regarding marital status, the majority of Saudi students (56.2%) were married, followed by the Eastern international students (44.9%). In contrast, most of the local British and European international students were single (70.8% and 87.2%, respectively). Most of the Eastern students studying in the UK were Saudi (62.8%), while the European international students were from diverse European countries, such as Denmark, Germany, France, Greece, and others, with no predominance of any nationality.

3.5.3 Questionnaire design

Construct measures

The online questionnaire included self-report instruments based on previously standardised and validated scales, measuring the constructs TA, DAS and sleep quality, and procrastination (see Appendix A.6).

To assess students' TA, the Test Anxiety Inventory ([TAI]; Spielberger et al., 1980) was used. The TAI is a widely used scale and has often been cited in previous literature in various countries and educational settings and it has been translated into many languages (e.g., Robson et al., 2023; Roos et al., 2021). The TAI consists of 20 items, asking participants to report the level of anxiety they experienced before, during and after taking examinations/tests. The TAI determines scores for two components, worry (e.g., "I believe I am going to fail the test") and emotionality (e.g., "my heart beats faster when I am taking a test"), and the total TA score. The items are measured using a four-point Likert-type scale: 1 (almost never), 2 (sometimes), 3 (almost) and 4 (almost always). Total scores thus range from 20 to 80.

The TAI measures levels and individual differences in trait TA, conceptualised as a situation-specific personality trait (Spielberger & Vagg, 1995). It incorporates the two multidimensional subscales of worry and emotionality and is empirically supported by the two-factor structure (Ali & Mohsen, 2013). It is brief, taking only about 5–10 minutes to complete. The distinction between worry and emotionality is justified in the literature and the systematic review. Licensing for the use of TAI was obtained online from Mind Garden.

The study also employed the short form of the Depression Anxiety Stress Scale, DASS-21, which was developed by Lovibond and Lovibond (1995) for research in nonclinical samples. DASS-21 consists of three subscales: DASS-21-D for depression, DASS-21-A for anxiety and DASS-21-S for stress. Each subscale contains seven items and for each item experience over the past seven days is assessed using a four-point Likert-type scale from (0) to (3) (Lovibond & Lovibond, 1995). The depression subscale measures devaluation of life, hopelessness, inertia and lack of interest and involvement. The anxiety subscale measures subjective experience of anxious affect and autonomic arousal. The stress subscale assesses impatience, difficulty relaxing, agitation, nervous arousal, and irritability. For scoring purposes, each result on the DASS-21 is multiplied by two to facilitate the interpretation of the results (Lovibond & Lovibond, 1995). The DASS-21 items used to measure depression are (3, 5, 10, 13, 16,17, 21); anxiety are (2, 4, 7, 9, 15, 19, 20); stress are (1, 6, 8, 11, 12, 14, 18). The scoring on each sub-scale indicates normal, mild, moderate, severe, or extremely severe depression and anxiety and stress symptoms.

The Sleep Condition Indicator (SCI) is an eight-item scale assessing sleep problems based upon DSM-5 Insomnia Disorder criteria (Espie et al, 2014). The SCI consists of elements related to sleep continuity, satisfaction with sleep, the intensity of sleep issues, and the daytime effects attributed to inadequate sleep. Items are measured on a five-point Likert-type scale (0–4). An overall score ranging from 0 to 32 is generated by summing the individual scores, with a higher score suggesting better sleep quality.

The last construct was procrastination. The Tuckman procrastination scale was used to explore the students' procrastination tendencies (Tuckman, 1991). The scale is a self-report measure consisting of 16 items and has a single-factor structure. Items are scored from 1 (strongly disagree) to 5 (strongly agree). Total scores range from 16 to 80 and higher scores refer to a greater tendency to procrastination. It is the scale most widely

used to identify procrastinators in research (Martín-Antón, et al., 2023), is easy to use, has high reliability and validity and captures academic procrastination tendencies.

In addition, two open questions were included: “What are the primary sources of test anxiety for you?”; “Have you used any coping strategies which help to reduce your test anxiety?”; and one close-ended question “What type of assessment increases your test anxiety?”.

Translation

There were already validated and readily available Arabic versions of the TAI (El-Zahhar & Hocevar, 1991), DASS-21 (Moussa et al., 2017) and TPS (Sakran, 2010). Consequently, these instruments were both methodologically and culturally appropriate for the study.

For the SCI, there was no available translation. Thus, I adhered to a validated and established translation process from English into Arabic, employing forward and back translation as advised by Brislin (1970) and Pena (2007). Three independent translators undertook the translation from English to Arabic and one native independent translator translated it back from Arabic to English. The back-translated version was then compared to the original English version. Translated measures are in Appendix A.7

Piloting

A pilot study is a pre-test conducted before the main study, testing the methods – in this case the questionnaire – to determine their effectiveness and appropriateness, identifying any concerns and enhancing the trustworthiness of the instruments (Creswell & Creswell, 2017). In this study, piloting was conducted with a small sample (N = 12) of postgraduate students who were not included in the formal sample to investigate potential practical concerns and improve the format, questions and instructions. The online questionnaire was piloted via email and the participants were asked to provide feedback on the clarity of the questions and language used. Attention was also paid to the time required to complete the online survey.

Following feedback on the questionnaire, some structures were modified to ensure the survey was clear and coherent. For example, the questionnaire was not well organised in terms of grouping sections. The questionnaire could be completed in around 15 minutes.

Construct validity and reliability

It is necessary to ensure that the respondents read and understand the discrete constructs differently. The researcher needs to ensure construct validity, namely that the items measure the constructs they are intended to measure and that they do so consistently across contexts and groups (Taylor, 2013). Validity was established by assessing the factor loadings for the five models (i.e., British, Saudi, Eastern, European and global) and only those items that were valid (i.e., > 0.5) in all sections were accepted.

Having tested the validity and defined the items to be used, reliability analysis was conducted to ensure the internal consistency of the scales. This research found the worry and emotion subscales of TA were valid and reliable in all contexts as the Cronbach's alpha, composite reliability and average variance extracted (AVE) values were all greater than 0.5. The only exception was AVE in the European context, which was a little below 0.5. This could be due to the high association between the worry and emotion dimensions of TA for these students, or the limited number of European students in the sample (fewer than 40) skewing the results. However, all the factor loadings were greater than 0.5, ensuring the validity of the constructs.

The DASS-21 is a well-established and valid measure and is convenient, quick, accurate and freely accessible (Lovibond & Lovibond, 1995). Some items were removed to establish the cross-validity of the constructs, ensuring all the items had sufficient factor loadings. Items 5 and 13 were removed from the depression sub-scale, items 6, 14 and 18 from the stress sub-scale and items 2 and 20 from the anxiety sub-scale. After removing these items, the reliability and validity measures were acceptable for all contexts. Cronbach's alpha, composite reliability, Rho_A, and AVE were calculated for the depression, anxiety and stress subscales in all contexts and found to be above the threshold of 0.5, indicating validity and reliability.

The SCI has been used in different countries, including the UK (Mathews et al., 2023), China (Meng et al., 2022), France (Faccini et al., 2023) and Qatar (Khaled et al., 2021). Items 1, 2 and 6 were removed due to weak factor loadings. After removing these items, all validity and reliability measures were acceptable with Cronbach's alpha, composite reliability, Rho_A and AVE values all above the threshold of 0.5, indicating the reliability and validity of the scale.

The procrastination scale (TPS) has been used widely in different countries, such as Jordan (Abuhmaid & Mohammad, 2020), Saudi Arabia (Al Shaiban, 2020), the UK (Stewart et al., 2016) and the US (Antshel et al., 2021). Items 1, 2, 4, 7, 14 and 16 were

removed from the scale due to weak factor loadings (i.e. below 0.4). For the final scale, validity and reliability were assured with Cronbach's alpha, composite reliability, Rho_A, and AVE values all above the threshold of 0.5. The construct validity and reliability are presented in Table 3.1.

Table 3. 1 Construct validity and reliability.

Construct/Items		Eastern International	Local Saudi	Local British	European International	Global
TA-Emotionality	**α**	.89	.87	.92	.89	.91
	CR	.92	.90	.93	.90	.93
	Rho_A	.90	.88	.93	.90	.91
	AVE	.58	.54	.64	.56	.62
2- While taking examinations I have an uneasy, upset feeling		.63	.68	.79	.60	.73
8- I feel very jittery when taking an important test		.73	.50	.84	.77	.72
9- Even when I'm well prepared for a test, I feel very nervous about it		.81	.79	.78	.77	.81
10- I start feeling very uneasy just before getting a test paper back		.70	.72	.60	.79	.72
11-During tests I feel very tense		.81	.81	.85	.68	.82
15- I feel very panicky when I take an important test		.85	.76	.87	.82	.84
16- I worry a great deal before taking an important examination		.78	.81	.87	.83	.85
18- I feel my heart beating very fast during important tests		.75	.70	.74	.67	.72
TA-Worry	**α**	.88	.83	.89	.78	.87
	CR	.90	.87	.91	.84	.90
	Rho_A	.88	.84	.89	.79	.88
	AVE	.54	.50	.57	.40	.54
3. Thinking about my grade in a course interferes with my work on tests		.68	.60	.65	.69	.69
4. I freeze up on important exams.		.73	.60	.78	.53	.73
5. During exams I find myself thinking about whether I'll ever get through school		.88	.66	.73	.72	.74
6. The harder I work at taking a test, the more confused I get		.69	.64	.67	.60	.60
7. Thoughts of doing poorly interfere with my concentration on tests		.74	.71	.83	.57	.77
14. I seem to defeat myself while working on important tests		.67	.70	.73	.69	.74
17. During tests I find myself thinking about the consequences of failing		.75	.71	.80	.69	.77
20. During examinations I get so nervous that I forget facts I really know		.70	.76	.78	.46	.76
	α	.87	.92	.90	.94	.91
Procrastination	**CR**	.89	.93	.92	.95	.93

	Rho_A	.88	.97	.91	.96	.93
	AVE	.47	.61	.55	.67	.59
3-When I have a deadline, I wait until the last minute.		.67	.71	.67	.80	.71
5-I keep putting off improving my work habits.		.66	.70	.76	.86	.77
6-I manage to find an excuse for not doing something.		.64	.62	.74	.79	.73
8-I am an incurable time waster.		.64	.81	.77	.91	.78
9-I'm a time waster now but I can't seem to do anything about it.		.84	.84	.81	.84	.81
10-When something's too tough to tackle, I believe in postponing it.		.61	.77	.67	.53	.63
11-I promise myself I'll do something and then drag my feet.		.72	.88	.72	.90	.81
13-Even though I hate myself if I don't get started, it doesn't get me going.		.65	.83	.75	.83	.77
15-I get stuck in neutral even though I know how important it is to get started.		.71	.83	.73	.83	.82
Depression	**α**	.84	.79	.90	.86	.86
	CR	.88	.86	.93	.89	.90
	Rho_A	.87	.80	.91	.94	.87
	AVE	.61	.55	.72	.63	.64
3 (d) I couldn't seem to experience any positive feeling at all*		.70	.70	.81	.82	.74
10 (d) I felt that I had nothing to look forward to		.80	.67	.83	.88	.80
16 (d) I was unable to become enthusiastic about anything		.80	.74	.86	.81	.80
17 (d) I felt I wasn't worth much as a person		.87	.79	.86	.78	.84
21 (d) I felt that life was meaningless		.69	.78	.85	.64	.80
Anxiety	**α**	.78	.79	.81	.88	.81
	CR	.87	.88	.89	.92	.89
	Rho_A	.85	.79	.82	.88	.81
	AVE	.69	.71	.73	.80	.73
4 (a) I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)		.80	.85	.84	.88	.85
7 (a) I experienced trembling (e.g., in the hands)		.88	.78	.80	.90	.81
19 (a) I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)		.80	.89	.91	.91	.89
Stress	**α**	.83	.86	.85	.80	.84
	CR	.89	.91	.89	.86	.90
	Rho_A	.85	.86	.90	.91	.86
	AVE	.67	.71	.68	.61	.68
1 (s) I found it hard to wind down		.66	.78	.76	.68	.73

8 (s) I felt that I was using a lot of nervous energy		.86	.86	.84	.83	.83
11 (s) I found myself getting agitated		.86	.83	.86	.80	.85
12 (s) I found it difficult to relax		.87	.89	.82	.80	.86
Sleep quality	**α**	.84	.90	.88	.86	.88
	CR	.88	.93	.91	.90	.91
	Rho_A	.86	.93	.90	.90	.89
	AVE	.60	.72	.67	.64	.68
3…. how many nights a week do you have a problem with your sleep?		.81	.83	.81	.83	.80
4…. how would you rate your sleep quality?		.80	.84	.87	.89	.86
5…. affected your mood, energy, or relationships?		.74	.88	.83	.78	.82
7…. troubled you in general?		.67	.90	.85	.79	.84
8…. how long have you had a problem with your sleep?		.83	.77	.72	.70	.76

3.5.4 Methods of analysis

The aim was to examines the trends in data for TA, DAS, procrastination, sleep quality, and their main source of TA, the assessments that led to TA and coping strategies among four groups of university students: local British students, local Saudi students, Eastern international students, and European international students. The data were described using mean and frequency analysis.

3.6 Research 3: Semi-Structured Interviews

This study undertook semi-structured interviews to elaborate on participants' responses and help build an understanding of participants' TA, how they experienced it, the perceived factors that trigger it and how they cope with it. Following the semi-structured approach, a guide is prepared beforehand, but it does not have to be strictly adhered to in terms of the precise formulation of the questions or their order (Braun & Clarke, 2013). In this study, the interviews initially addressed the participants' perceptions and experiences of TA. This was then complemented by an exploration of their emotions and reflections, captured through photo-elicitation and vignettes, detailed in 3.6.1.

3.6.1 Interview guide

The interview guide developed for this study was meticulously structured to cover six distinct aspects, ensuring a comprehensive approach to address the research aims and objectives (see Appendix A.8), The first set of questions sought information on the interviewee's demographic background, including age, university, area of specialisation and course of study. Additionally, these questions aimed to understand the interviewee's postgraduate taught experience and how this contrasted with their prior undergraduate

studies, both generally and within their home country if an international student. This set of questions was planned to comprise the first five minutes of the interview.

The second set of questions explored understanding and experiences of TA across contexts, addressing the first research objective about the variability of TA. A generic unguided question, such as “How do you experience test anxiety?” was posed, followed by inquiries about the specific symptoms of TA for the individual, aiming to unravel his/her personal experiences of TA. The third set of questions sought to validate and extend TA symptoms using photo-elicitation, as will be detailed in the next section. Due to the limitations of traditional interview questions in capturing emotions in depth, the third set of questions employed photo-elicitation as an emotion-based tool (Reavey, 2012). This visual method is applied to engage the participants, acting as stimuli during the individual interviews and helping to reveal students’ perceptions and insights (Glaw et al., 2017; Bates et al., 2017). This method empowers participants to depict their experiences and feelings using pictures (Rose, 2016), allowing for a more nuanced exploration. The second and third sets of questions were planned to take around 20 minutes.

The fourth set of questions investigated the triggers of TA, both generally and those that might differ according to the context, addressing the second research question. By asking an open-ended question, such as “What are the triggers of TA for you?” without referring to any specific theoretical framework, unexpected insights may be unearthed that could be go beyond the proposed framework. The fifth set of questions comprised an extension and validation of TA triggers explored through vignettes. This approach aids participants in articulating their experiences more coherently (Azman & Mahadhir, 2017; Wilson & While 1998), using bioecological theory to frame the narrative and follow-up questions. The fourth and fifth sets of questions were planned to take up around 30 minutes.

The final set of questions addressed the last research question, focusing on coping strategies across contexts. This section consisted of two main streams of questions, one concerning different coping strategies, including perceived rationales and effectiveness, and the other relating to seeking help, including perceived barriers and motivations. This was planned to take around 10 minutes.

3.6.1.1. Photo-elicitation

Visual methodologies are a group of techniques used to interpret and understand images, including film, paintings, video and photography (Bates et al., 2017). They offer considerable benefits by presenting a new way of investigating previously difficult to understand topics (Bates et al., 2017). Photo-elicitation is considered an invaluable tool in interviews for three reasons. First, long interviews can lead to fatigue and boredom among the interviewees. Picture elucidation is a more engaging and motivational way of expressing ideas and thoughts than relying solely on traditional interview questions (Harper, 2002). In addition, asking participants to take photos and talk about them allows them to reflect on their activities and express their implicit feelings and thoughts.

Second, photo-elicitation affords valuable views and insights into the worlds of individuals (Barbour, 2014) and enriches the data by exploring further layers of insights and meanings, creating knowledge and adding depth, especially when the topic is about emotions and feelings that could be difficult to express (Rose, 2016), such as TA, depression, stress and anxiety. It offers a way of eliciting meanings, memories and deep emotions that add more to subsequent knowledge than written and verbal methods alone (Glaw et al., 2017).

Third, using photo-elicitation stimulates responses and memories (Reavey, 2012) and has been used to evoke memories and generate discussion in a way that standardised questions are not able to do (Bates et al., 2017). This makes it qualified for helping participants remember their emotions, feelings and thoughts in discussing their experiences of TA.

Despite the popularity of photo-elicitation within the fields of sociology and anthropology, its use is limited in psychological research (Bates et al., 2017). However, this method has been used in a study examining nursing students' perceptions of using accommodations to address TA and how others view this practice (Liu & Xu, 2017). Therefore, it seemed an appropriate methodology for this TA research.

To put this method into practice, I asked the volunteers who expressed interest in being involved in this research to send me pictures reflecting their experiences of test anxiety by email before the interview. They were given two weeks to take a minimum of three photos. I specified that these pictures should not include people for ethical reasons and should focus only on objects or places without any identifiable information about others.

In the interview, given the potency of photo-elicitation as a technique to enable participants to articulate their emotions and sentiments meaningfully (Menter et al., 2011; Rose, 2016), the initial queries presented were as follows: “Why did you select these particular pictures?” and “Could you describe what is observable within these pictures?” These inquiries sought to reveal overt and precise emotional responses through the participants’ detailing and elaboration of the images. The second question reinforced the first by encouraging the participant to continue the descriptive process, grounding their narrative within the context of their TA experiences. As the conversation shifted towards establishing a connection between the pictures and the participants’ experiences, I introduced a third question, focusing explicitly on their TA experiences. This question was intentionally introduced at this juncture to correlate their emotional response, evoked by the images, with their recollections and experiences of TA, as their memories could be rekindled during the description of the pictures. Once it became evident that the participants had exhausted their narration of their experiences, signified by a cessation in the dialogue, I then proceeded to the fourth query. This question pertained to the contextual elements that could either enhance or diminish these experiences and the specific assessments that could foster these experiences.

3.6.1.2. Vignettes

This study also employed vignettes, presenting a short story to the participants who then responded to a series of open-ended questions. A vignette is “a short hypothetical scenario” about an imaginary individual presented to participants during quantitative or qualitative research (e.g. within a group discussion or an interview) to elicit information concerning their own beliefs, views, perceptions and attitudes from comments on the scenario or story presented (Barter & Renold, 1999; Budd & Kandemir, 2018; Menter et al., 2011). The use of vignettes enables the participant to explore the situation using their own words.

Although there is concern regarding the use of vignettes, as they are less effective than observation as a tool to collect data, Wilson and While (1998, p. 83) argued that because vignettes are “simulations of reality”, they can help identify knowledge and opinions in a given scenario. They can encourage the expression of perceptions and beliefs as the participants’ comments are related to the scenarios or situation presented (Azman & Mahadhir, 2017). They can also help in avoiding potential bias as the presence of observers may alter participants’ behaviours and it also minimized the legal and ethical implication that may exist during observation) Wilson and While, 1998). It also helps to

elicit cultural norms based on the attitudes and beliefs of participants about a specific situation (Barter & Renold, 1999). The design comprised five stages: background, TA experience, mesosystem/exosystem factors, microsystem/macrosystem factors and coping strategies.

- Background

The first stage involves introducing the case to establish a psychological connection between the participants and vignette by contextualising the case to fit their situation. In this study, I started by introducing the character and stating the motivation of this character to study at home/abroad based on the participant. The home students might have different motivations from the international students, such as being close to their family and their culture as opposed to confronting the challenges of living abroad (e.g. a sense of isolation and loneliness). Thus, the home students in the UK and Saudi Arabia were presented with the same introduction with changes in the name (British/Saudi) and location of the university (UK/Saudi Arabia), as follows:

> *Harry/Ahlam is a British/Saudi PGT student at a UK/Saudi university. He decided to continue his studies in the UK/Saudi Arabia for many reasons, such as the cost of living, to be close to his existing social circle, and familiarity with his culture.*

For the international students, the context differed, and they might have different motivations. To establish the psychological connection between the character and the participant, the challenges and motivations of studying abroad were drawn from the literature (Akanwa, 2015; Khanal & Gaulee, 2019). The motivations to study abroad were quality teaching and learning new things, while the challenges were being isolated from family and friends, in addition to the cost of living abroad. The introduction section for the international students was as follows:

> *Mona is an international PGT student in the UK. She was motivated to study in the UK by the value added from a UK degree, the high teaching quality and the education system, in addition to the academic and administrative support provided by UK universities. So, she decided to move despite the different language, culture and assessment system. She is suffering from being isolated from family and friends, in addition to the expense of transport and housing.*

- Test Anxiety

The second section aimed to validate and extend the experiences of TA by reminding the participants about other experiences that might not have been indicated previously in the open-ended questions, giving examples of how the person in the vignette experienced TA. As there are no clear indications in the literature of symptoms of TA differ depending

on the context (e.g. Lowe & Ang, 2012), this section was the same for all students in the UK and in Saudi Arabia. The symptoms were drawn from the literature (e.g., Lowe et al., 2008; Spielberger et al., 1980):

> *Due to test anxiety, he has been feeling increasingly uncomfortable, nervous, sick and shaky. His stomach is upset, his heart beats very fast and he has trouble sleeping nearly every night. He cannot keep his mind on his studies or on the tests and keeps thinking about failure, forgetting everything he knows, not doing well and not being able to find further work or chances to study. He fears losing control, embarrassment and the judgment of others. He is afraid of not remembering in the closed book exams. Leaving things to the last minute also increases his stress. Harry is worried about the impact of test anxiety on his life, studies, and mental health.*

To direct the conversations towards the participant's self-reflection on experiences of TA, I asked two questions about the vignette character's experiences: "Do you think Harry suffered from these symptoms?" and "What other TA symptoms or experiences could Harry have?" The first one was expected to lead the participant to confirm and validate the experience illustrated in the vignette by giving me examples from his/her personal experience, while the second sought to motivate the participant to talk more about his/her experiences.

The second set of questions explored the triggers of TA from the participants' perspective. Two questions were asked here: "What do you think may have caused Harry to feel stressed and anxious during examination periods? How? Why?" and "Why do you think Harry feels anxious about exams?" These two questions are deliberately close in nature, seeking to ensure the validity and reliability of the responses. In addition, they are not far removed from the first interview questions concerning the reasons for TA, but the vignette is believed to give more deeply felt and insightful reflections.

- Mesosystem/exosystem factors

Based on the theoretical framework, TA was conceptualised in terms of bio-ecological/ biopsychosocial factors at the mesosystem, exosystem, microsystem, macrosystem and individual levels. The individual factors were tested using quantitative methods in the questionnaire. The vignettes focused on the other four dimensions. Drawing on the systematic review and literature review, the mesosystem concerned assessment types and the exosystem related to the shift in education policy to studying from home under COVID-19 restrictions. The exosystem was similar for all groups, resulting in the framing of an identical statement across the three vignettes:

> *The emergence of COVID-19 has forced universities to shift to virtual teaching and assessment as an alternative to face-to-face methods.*

Regarding assessment types, the UK system is dominated by coursework while the Saudi system is dominated by memorisation and examinations (AlSahafi & Shin, 2019; Gregory & Bend, 2019). Therefore, there were two drafts for the vignettes: UK and Saudi. In the UK context, there are both local and international students, who may be used to memorisation examinations in their home countries. Thus, while the international students had the same script as the British students, a line was added to reflect the potential conflict between what they were previously used to and the current education assessment system in the UK (in bold):

> *In UK higher education, a taught master's degree typically takes one year and there is increasing use of assessment by coursework instead of conventional unseen exams. Assessments are designed to assess many skills and reflect independent learning and various teaching methods. He is always nervous/stressed about university tests and exams even if he has prepared well and his stress increases when he knows that the test is all short answers or essay questions.* ***In her previous studies, she used to rely on memorization and rote learning rather than critical thinking and developing interpretation and application skills, which characterize the UK education system****.*

In the Saudi script, the only difference was the assessment method, addressing memorisation and examinations and their challenges, derived from the literature (AlSahafi & Shin, 2019; Gregory & Bend, 2019):

> *Ahlam used to rely on memorisation and rote learning rather than critical thinking in her studies. The traditional method of assessment is written examination, having to answer questions that do not measure understanding but the ability to memorise and list also increases her stress about exams.*

Following up on this section, four questions were asked to validate and extend the possible reasons for developing TA in postgraduate students in the different contexts covering meso-level factors: teaching methods and learning approaches (Cardozo et al., 2020; Haseli & Rezaii, 2013), difficulty of examinations (Bonaccio & Reeve, 2010), and lack of familiarity of the assessment (Nihea & Chiramanee, 2014). The questions were: "What about the methods teachers used in teaching, do you think they might cause TA for Harry? How? Can you give an example?", "Do you think the learning approaches used by Harry may cause TA? How? Can you give an example?", "Do you think Harry's view of the importance or difficulty of exams might be related to his experience of TA?" and "Do you think the differences between undergraduate and postgraduate assessment types, the ways of learning or the ways of teaching cause TA? How about the home assessment type and host? How?"

- Microsystem/macrosystem factors

Microsystem and macrosystem factors are reflected in the culture and the role it could play in the development of TA among students (Lowe, 2021c; Putwain, 2007). These factors are summarised in relation to subjective norms or at the operational level, societal and family expectations (Raymo et al., 2019; Xu et al., 2021). As all these factors could relate to all contexts, all the students had the same script:

> *Harry's parents and his social circle have high expectations of success.*

In addition, all the vignette scripts contained the same question: "Do you think that Harry's anxiety about exams relates to his culture? What are the cultural factors? How? Why?" This aimed to highlight other cultural factors that could play a part in developing TA.

- Coping strategies

The last section in the script concerned coping strategies. All the students in different contexts at this point of research were presumed to have similar triggers for their own experiences of and reflections on coping strategies. Thus, they had the same script. In Saudi Arabia, "religious strategies" were added due to it being a highly religious society (Alosaimi et al., 2015):

> *To combat his fear and anxiety about tests, he has talked to other students about how they prepare and has taken anxiety medication before and during tests. However, he has never asked for help from psychological counselling services or shared his fears with friends. He has talked to close friends who have had the same fears and has used* ***religious strategies*** *to reduce her anxiety.*

The question asked about the participant's views of coping strategies and how useful and effective they were: "What do you think about Harry's coping strategies? Do you think they are effective? Why might he not go to counselling services?"

3.6.2 Translation of interview transcripts

I initially developed the interview guide in English and subsequently translated it into Arabic aiming to ensure that the Arabic translation preserved the same meaning as the English version. Another native Arabic speaker reviewed the Arabic version for accuracy and coherence. Despite the English proficiency expected of all international Arab postgraduate students, it was possible that certain specialised psychological terms could have hampered the interviewees' ability to understand and express themselves clearly.

Thus, respondents could choose between speaking English or Arabic in the interviews, allowing them to express themselves in their preferred language. A professional translation service transcribed the Arabic interviews into English. Following that, I compared the Arabic transcription to an English translation to verify the meaning and accuracy of translations based on what they meant in the interview (see Appendix A.9)

3.6.3 Interview platform

Semi-structured interviews, including photo-elicitation and vignettes, can be conducted in various forms, primarily online or face-to-face (Al Balushi, 2018). This phase of the research stage was conducted during the COVID pandemic, when heavy restrictions were in place that precluded face-to-face methods. There is a concern that online interviews can be disrupted by technical issues such as a lack of technical knowledge or disconnected calls (Braun & Clarke, 2013; Krouwel et al., 2019). In addition, triangulating the qualitative methods of conventional interviews with photo-elicitation and vignettes on an online interview platform required special attention in terms of time management. These challenges could be overcome by planning and creating a timeline with a strong focus on the individual stages beforehand and committing to it, as well as careful time management (Adams, 2015). Two weeks prior to the interview, I sent the instructions regarding taking photos or using existing photos that reflected aspects of their experiences with TA and sending them to me by email (see Appendix A.10). The interviewees were asked to check their internet signal and the quality of their microphones and speaker one hour before the interview. The information sheet and consent form for the interview and use of the photo in this research, the demographic information, and the instructions regarding taking photographs were implemented via Microsoft forms.

The online interviews were conducted on video calls using Microsoft Teams, as advised by the School Ethics Committee, due to the stability of connection, ability to record the calls, management of pictures and files, capacity for automated transcription and data security policies.

3.6.4 Recruitment process

Sampling can be randomised or purposive (Mason, 2002). In this study, the postgraduate taught students were chosen purposively because the qualitative aspect sought insights from specific cases (those experiencing TA) and concerning specific challenges (Braun

& Clarke, 2013) rather than generalisation (Robinson, 2014). According to Mason (2002) and Trost (1986), in a purposive strategy the researcher supposes that the categories of the participants may present different and unique perspectives on the phenomenon. Purposive sampling involves selecting participants based on specific characteristics or experiences. In addition to being cost-effective, purposive sampling is also time-effective (Clark et al., 2021).

In this study, nationality, study status (previous or current students), education level (postgraduate) and experiencing TA were used as criteria for participant selection in each group. In addition, the participants were recruited from postgraduate taught students who had previously completed the quantitative questionnaire and provided contact details to participate in the initial qualitative study, as well as current postgraduate taught students studying at the UOG and UOH or other universities in the UK and Saudi Arabia.

Patton (2002, p. 244, cited in Teddlie & Tashakkori, 2010) argued that "there are no rules for sample size in qualitative inquiry" as it depends on various factors, such as "what you want to know". Guest et al. (2006) suggested that a sample consisting of six interviews might be sufficient in establishing useful explanations and full themes. Braun and Clarke (2013) considered that for thematic analysis, sufficient data for small projects might range from 6 to 10 interviews.

To identify potential participants who met the study criteria, I contacted university services, Moodle forums, degree programme offices, the Convenors and Representatives of schools, supervisors, and personal networks and groups in Microsoft Teams, Facebook and WhatsApp. Only three from those completed the survey took part in the interview research. As part of the recruitment process, I and my supervisors prepared an invitation letter for potential participants which explained the nature of the study and my purpose in contacting them.

3.6.5 Participants' demographic characteristics

In all 15 participants agreed to participate, 3 from the UK and studying in the UK (2 female and 1 male), 2 European students studying in the UK (male and female French and Dutch nationals), 5 local Saudi students (2 female and 3 male), 5 Eastern international students studying in the UK (1 Saudi male and 1 Saudi female, 1 Lebanese male, 1 Chinese female, and 1 Pakistani female) (see Appendix A.11).

3.6.6 Qualitative analysis

This research embraced thematic analysis as an analytic approach for the qualitative aspect. Thematic analysis comprises a detailed procedure defined by Braun and Clarke (2013) that consists of seven stages, each of which is detailed in turn below.

The first phase comprises transcription, which aids in familiarization with and immersion in the data (Byrne, 2021). I employed the transcription tool in Microsoft Teams to generate initial transcripts, which I then meticulously corrected for errors produced by the transcription software by listening to and reviewing the recordings multiple times. Furthermore, as outlined in the section on qualitative research quality, this process ensured that the transcripts accurately reflected the intended meanings of the responses. The second phase is reading and familiarisation. After organising the transcripts in Word, I read and re-read each transcript many times and started writing down what I noticed, applying the concepts of bioecological theory to interpret the various aspects (Braun & Clarke, 2013), without having predefined theories in mind. The third phase is generating initial codes. This stage involves identifying patterns in the data related to bioecological aspects in terms of the microsystem, macrosystem, mesosystem, exosystem and individual-level factors, then collating similar codes. Two transcriptions with initial codes were validated by three supervisors. After receiving their comments, I developed the coding process and resent them.

The fourth step comprised searching for themes and documenting them in Excel. The significance of a theme is not related to the number of codes but rather what is meaningful in answering the research questions (Byrne, 2021). However, each code should have at least two participants with a common background, e.g., the same culture, the same educational system, or the same experience of being international students. I constructed theme called “unrelated”, with subthemes containing similar codes that did not appear to fit in any candidate themes (Braun & Clarke, 2013). I validated this stage with my supervisors. Then I moved on to analysis in NVivo, a software program used to support qualitative data analysis (Zamawe, 2015), to complete the development of the proposed themes.

The fifth step is reviewing the themes and producing a map of potential themes and subthemes and their connections (Braun & Clarke, 2013). An initial thematic map was generated representing the links between themes and subthemes to construct overall themes. Then, this thematic map was reviewed based on the supervisors' comments. The sixth step entails writing definitions, which are useful to identify the boundaries and

focus of the themes and what they are about (Braun & Clarke, 2013). Themes and subthemes and their definitions were used to interpret the data focusing on the students' experiences of TA, the perceived factors influencing TA and coping strategies. In this step, some themes and subthemes were revised and renamed to produce a more coherent picture.

The last stage included the selection of extracts to explain each theme and subtheme, writing the narrative to tell the coherent story of each theme and subtheme and the development of the themes in their own right and in relation to the research questions and other themes (Braun & Clarke, 2013).

3.6.7 Qualitative research quality

The quality of qualitative research is established through a set of measures in terms of the tools and the process (cohen et al., 2007). The quality of the tools used was first assured through the pilot study, undertaken with three students. A pilot study is conducted with a sample of comparable respondents not participating in the main study. It helps to gain confidence and experience and determine whether the instructions and questions are clear and effective (Clark et al., 2021). I conducted a pilot study in June 2021 with three participants who did not take part in the main study (international, local British and local Saudi students). This helped identify the positive aspects and deficiencies in the design of the interview questions and the development of interview skills. Those participating in the pilot study were asked to provide feedback on the design of the interview questions so that I could refine them. Since the pilot study helps identify issues in the preparation of the interview protocol, it can lead to restructuring or modification of specific questions (Clark et al., 2021). Two interviews were noted to take about 40-50 minutes, while one pilot interview with an international participant lasted an entire hour. Following the pilot study, no modifications were required.

The quality of the interview process is ensured through a set of measures addressing reliability, validity, credibility and reflexivity as illustrated in Table (Cohen et al., 2007; Hammarberg et al., 2016). Reliability entails the ability of participants to report without being affected by any pressure, ensuring credibility. Thus, I confirmed that the interview data would be anonymous, and the participants' names would never be disclosed to any person. In addition, the veracity of participants' responses was ensured through the combinations of methods. The application of direct questions (in the interviews), photo-elicitation and vignettes were helpful in addressing the three critical questions concerning the experience of TA, triggers and coping strategies.

Validity entails ensuring that the research findings accurately reflect the participants' perceptions (Kirk & miller, 1986). Thus, from time to time, I paraphrased their statements and sought confirmation of understanding. Credibility is about the researcher's honesty and trustworthiness in reporting, confirmed by the consistency of the story line in the findings, as well as securing all the recordings and transcriptions. The supervisors checked some of the transcriptions and ensured the integrity of the reporting process. Finally, reflexivity is deployed to ensure that the researcher's understanding is correct, and this is assured by returning to the literature in the discussion and on some occasions in the analysis to ensure that the findings are aligned with the previous literature and if any discrepancies are discovered, further literature and evidence are reported to justify variations. The criteria for the quality of qualitative research are summarized in Table 3.2.

Table 3. 2 Criteria for the Quality of Qualitative Research

Research Quality	Definition	Measure(s) used
Reliability	Participants are telling the truth, and their discourse is constant over time.	The same critical questions were asked several times in different ways. The use of questions, reflections on the photos and vignettes. Spelling out the consent form before the meeting to highlight that all data gathered would be confidential and not shared.
Validity	Ensuring the researcher's understanding matches the participants' understandings.	Paraphrasing the answers and ensuring similar results.
Credibility	Ensuring what is written is correct, matching the truth and trustworthiness.	Consistency of the report with few contradictions between findings – using a recorder and recording interviews.
Reflexivity	Assuring the researcher's understanding is right and interpretations are fitting.	Evaluating different possible understandings of the facts using the literature review and different rationales.

3.7 Ethical considerations

Prior to data collection, applications for ethical approval were submitted to and reviewed by the College of Science and Engineering Ethics Committee, UOG. Once approval was obtained, I progressed to the data collection phase, starting with inviting students to participate through email communications (mediated by the universities) and through social media and school representatives. According to Bryman (2012), ethics in social research refers to more than just seeking consent; it also concerns considering the integrity of the research, which can be impacted within a range of stages. Thus, researchers should be aware of all ethical aspects to safeguard the research (e.g., Creswell

& Creswell, 2017). Three basic ethical issues had to be considered in this study: informed consent, privacy and confidentiality and potential risk (Creswell & Creswell, 2017).

With respect to informed consent, the students were provided with an information sheet which established the nature and aim of this research, the requirements in undertaking it and the confirmation that their participation would be voluntary. It also informed them about their rights to refuse to answer, withdraw from the study and not complete the survey or interviews at any stage without giving a reason. To proceed with the online survey or interview, participants were required to confirm that they had read the information and consented to participate by selecting a checkbox within the online forms and consent to the transcription of their words.

To confirm privacy and confidentiality, the participants were informed that the data and recordings from the online survey and interviews would be stored in a UOG one drive secured folders and safeguarded with passwords, so only I and my supervisors could access the information. I asked the participants not to submit any photo of a person or copyrighted material or products, or recognised places/universities. Additionally, they were informed about the use of pseudonyms and anonymity in the analysis and writing up of the findings. Moreover, the participants were assured that their personal data would be removed completely after the completion of the research. Such assurance was helpful in gaining their trust and confidence so that they would share information without any threat, and it helped ensure credible and valid responses addressing the research questions.

Regarding the assessment of potential risk, the participants were all adults, and this study was unlikely to involve any sensitive concerns. There was no notable risk arising from the online survey or interviews for the participants or the researcher. However, in the case that the participants experienced any stress resulting from the interviews, or if they needed support with assessments, the email addresses for the UOG and UOH Counselling and Psychological Services and the Learning Enhancement and Academic Development Service (LEADS), as well as links to self-help materials and resources, were provided in the information. My email address and my supervisor’s email address were also provided in case they had any questions or concerns. Information sheet and consent form for the online survey in Appendices A.12, and for qualitative interviews in Appendices A.13, and A.14.

Chapter 4. Systematic Review

4.1 Introduction

This chapter aims to answer three research questions: How is TA measured in the literature? How does TA differ across cultures and contexts? What implications do different assessment types have for TA? Section 4.2 sets out the scope of the study, establishing the bounds of the systematic review. The following sections (4.3–4.5) address each question in turn. Finally, section 4.6 summarises and discusses the findings.

4.2 Scope of the Study

TA, as a scientific concept, is a ubiquitous term used in 81 papers over 63 journals across 6 disciplines: education psychology (37%), psychology (26%), medical science (12%), medicine education (10%), business education (6%), English education (2%) and others (6%). The percentages are based on the number of papers published in all journals in each category. The classification is solely based on the title of the journal. For instance, journals with education or education and psychology in the title, such as Education Psychology, Education, Learning and Individual Differences and the Journal of Instructional Psychology, are classified as Education Psychology, whereas those that solely concern the field of psychology, such as Anxiety, Stress and Coping, Horizons of Psychology and Psychological Research are classified as psychology and those classified as medical science are dedicated to medical-related technical topics, such as Health Sciences and Radiography.

Most journal titles published only one paper (88.9%) that met the criteria for inclusion in the systematic review over the last two decades. Six journal titles (9.1%) published more than two papers on TA (9.1%): *Learning and Individual Differences* (4), *Contemporary Educational Psychology* (3), *Accounting Education* (3), *Journal of Educational Computing Research* (3), *Personality and Individual Differences* (3) and *Perceptual and Motor Skills* (3). The range of papers published per year was 1–10: 8 from 2000 to 2003, increasing to 4 in 2004, up to 6 in 2013, 2017 and 2019, and 10 in 2018 alone.

It is also notable that most papers (69) focused on undergraduates, whereas very few (7) addressed undergraduate and post-graduate students, or only post-graduate students (5). None of the papers examined the experiences of PhD students as it seems the TA measures were developed mainly for time-based assessment not for assessment based on

coursework, as will be detailed in the anatomy of the TA scale. In all, 79 studies were cross-sectional and only 2 adopted a longitudinal study design.

This overview illustrates that despite the concept of TA being established in the 1960s, few papers have been published in this field on graduates and even fewer on post-graduates. The papers published over the last two decades have been scattered over a wide range of journals in different disciplines and no one journal title has had more than four articles on this topic, leading to the argument that there is no "home" journal title for this discipline.

4.3 RO1: How is TA Measured in Literature?

Measures of TA have evolved significantly in the last 40 years (von der Embse et al., 2018). This section aims to illustrate the development of TA, highlighting the theoretical differences in the operationalisation of the construct. In addition, it seeks to determine a valid scale for measuring TA that can be used for research and practice.

In the last 20 years, 11 scales have been employed to measure TA: Sarason TA scale (Sarason, 1977), used in 7.40% of publications; the Test Anxiety Inventory (Spielberger, 1980), used in 23.4%; State-Trait Anxiety Inventory (Spielberger et al.,1983) in 6.1%; Reaction to Tests (Sarason, 1984) in 1.2%; the Motivated Strategies for Learning Questionnaire (Pintrich et al., 1993) in 9.8%; Revised Test Anxiety scale (Benson and El-Zahhar, 1994) in 2.4%; German Test Anxiety Inventory (Hodapp,1996) in 3.7%; Academic Emotions Questionnaire (Pekrun et al., 2002) in 2.4%; the Evaluation Anxiety Scale (Thompson & Dinnel, 2001) in 3.7%; Cognitive Test Anxiety scale (Cassady and Johnson, 2002) in 9.8%; the Westside Test Anxiety Scale (Driscoll, 2007) in 4.9%; a single-item measurement used in 9.8%, (the detailed information about these scales is presented in Appendix B.1). For the single-item scale, it is difficult to assess the reliability and validity using statistical methods and there is the possibility of obtaining invalid answers (Allen et al., 2022). Single-item constructs such as "Do you have test anxiety?" could be misinterpreted or poorly understood and do not assessing possible symptoms.

The fundamental starting point in understanding and operationalising TA has been based on affective feelings, bodily symptoms and thinking concerning assessments and their consequences (Sarason, 1977; Spielberger et al., 1980). All the papers used the same semantics except one, namely the State Trait Anxiety Inventory developed by Spielberger et al. (1983), which focused solely on emotions (one word) such as panicky,

happy, afraid and did not address other behavioural or cognitive factors or bodily symptoms. Perhaps due to this, only five papers in the literature used this scale.

Regarding multi-item constructs, Spielberger's (1980) Test Anxiety Inventory (TA) was the scale most used in the last 20 years (N = 19, 23.4%). Cross-referencing, as detailed in Appendix B.2, demonstrates that the TAI was an adaptation of Sarason's (1977) TA scale, which had too many items (37) and they were not taxonomised. The original scale was only applied 6 times in the literature (7.4% of all papers). Spielberger (1980) selected the items with the highest factor loadings and taxonomised them into two aspects: emotion (bodily symptoms and affectual feelings) and worry (thinking about the negative consequences of the test).

The second most common scale is the Motivated Strategies Learning Questionnaire (MSLQ), developed by Pintrich et al. (1993), which was used 8 times (9.8%). This 81-item scale was not developed specifically for TA, addressed through a subset of 7 items which examine worry and emotion as a sub-construct of motivation to learn. The fact that TA comprises a subset of items suggests that TA is not a dominant issue in literature compared to motivation.

The third scale is the Cognitive Test Anxiety Scale (CTAS), developed by Cassady and Johnson (2002) and employed 8 times (9.8% of papers). Cassady and Johnson (2002) claimed that their focus was mainly on the cognitive aspect, which they define as a mix of the worry and emotional aspects.

The remaining scales were used three times or fewer. Hodapp's (1996) instrument was a German version Speilberger's (1980) scale, amended by adding items and changing the weights of the dimensions. It was used only three times in the literature, perhaps because of its length (30 items). Sarason (1984) constructed another scale of 40 items, which was too lengthy and was only used once in the literature. Benson and El-Zahhar (1994) reduced and filtered so that only 20 items remained; it was used twice in addition to their application.

The constructs of worry and emotion are reflected in all the scales, but they are weighted differently. In Sarason's (1977) initial TA scale, 6 out of 37 items (16.2%) measured worry. In Sarason's (1984) revised version, applied once and improved later by Benson and Al Zahhar (1994), 4 items out 40 (10%) mainly concerned the worry dimension. In Spielberger's (1980) revision of Sarason's (1977) scale, worry is represented by 4 out of 20 items (20%), while Hodapp's (1996) adapted version of Spielberger (1980), 9 out of 30 items (30%) measured worry.

To sum up, Spielberger is the most common scale for measuring TA, as indicated by Putwain et al. (2020), which is a justification for using it in the quantitative analysis of this research. The most common term may not necessarily be the most appropriate. Commonality mainly helps the researchers to compare and link their findings with past studies in the same field, thereby improving consistency in interpretation. However, appropriateness is a subjective framework which depends on the specific theoretical frameworks and contexts (Constantine & Ponterotto, 2006; Loewenthal & Lewis, 2020). The appropriateness of tools or methodologies to assess the construct can be evaluated based on their adaptation and validation in various cultural contexts. (Hambleton, 1996; Loewenthal & Lewis, 2020; Borsa et al., 2012). The availability of TAI in different languages, like Arabic, and its validation for reliability and relevance in various settings highlight its suitability for cross-cultural research. (Ali & Mohsen, 2013; El-Zahhar & Hocevar, 1991; Putwain et al.,2020). Thus, while commonality facilitates comparisons more effectively, Appropriateness is determined by the specifics of each research context and the theoretical foundations of the study.

After synthesising the other scales, the dimensions of TA can be defined as worry, emotions, bodily symptoms, interference/irrelevant thinking, lack of confidence, depression, cognitive capacity, perception of importance of the test and assessment preferences. TA scales are dissimilar in how they treat the relative importance of emotions and worry. Due to a lack of consensus concerning the relative weights of TA symptoms, it may be necessary to make adjustment when studying TA across cultures to obtain comparable results.

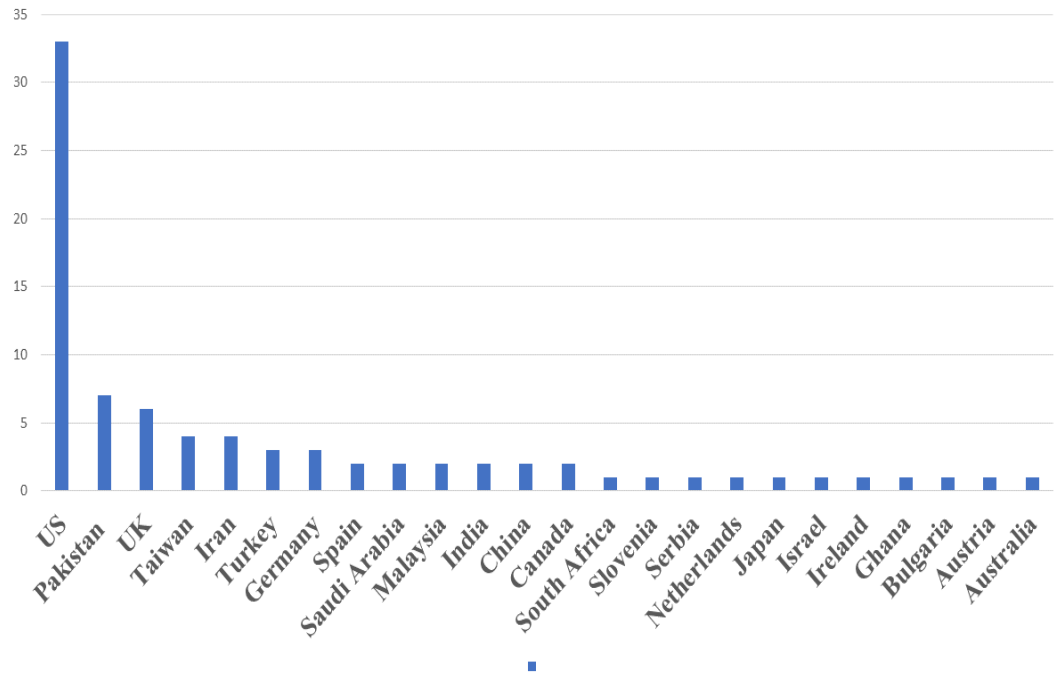
4.4 RO2: How Does TA Differ Across Countries?

There has been very limited study of TA in relation to the country context in the literature. It is not clear that all countries face the same level of TA. If not, TA could be influenced by contextual factors at the country level, such as income (Onem, 2014), education system (Lowe, 2021a) and cultural aspects (Hembree, 1988; Putwain, 2007). In this study, the systematic review sought to address two objectives in this regard: (i) identify in which countries papers were published on TA and (ii) the difference between countries' scores for TA.

The first objective concerned the extent of research on TA at the university level globally. The review identified papers on TA representing 24 countries: the US (33), Pakistan (7), the UK (6), Taiwan (4), Iran (4), Turkey (3), Germany (3), Spain (2), Saudi Arabia (2), Malaysia (2), India (2), China (2), and Canada (2), with single papers published for South

Africa, Slovenia, Serbia, the Netherlands, Japan, Israel, Ireland, Ghana, Bulgaria, Austria, and Australia. It is interesting to note that only two papers were published for the whole of Africa, one from Ghana and the other from South Africa, and for China there were only two papers. In the Arab context, only Saudi Arabia published two papers. This representation shows that the papers published in this field are clustered in the US, Pakistan, the UK, Taiwan and Iran, representing two thirds (64%) of the papers in the field. Hence, it is not possible to derive a conclusive answer to the question of whether the experience of TA is global because there is only evidence from 24 out of 195 countries in the world. This is a strong indication that despite its relatively long history, this field is not well established and has not been thoroughly researched in different countries, encompassing a range of cultures and educational settings. (See Figure 4.1)

Figure 4. 1 Frequency of papers according to country



The second objective was to assess any differences between the countries in levels of TA. To fulfil this objective, the TA scores were normalised across studies and countries by converting them into percentages instead of absolute measures. The scores per country were then weighted based on the sample size of each study to give the combined average and standard deviation per country. The highest levels of TA were reported in studies in Taiwan (71%), Saudi Arabia (71%) and Japan (68%) and the lowest in China (49%) and Spain (49%). The weighted average is a calculation of TA that takes into account the

varying degrees of importance of the numbers in a data set. In calculating the weighted average for TA, each number in the data set is multiplied by a predetermined weight (i.e. the sample size) before the final calculation is made. The percentage is given by the TA score divided by the maximum point of the scale multiplied by 100. Sigma (σ) denotes the combined standard deviation of the weighted average. It allows consideration of the relative significance of the weight of each study by sample size. Higher values are considered more significant in a sample. The standard deviation is an indicator of how widely values in a group differ from the mean (See Figure 4.2; Table 4.1).

Figure 4. 2 Levels of TA across countries

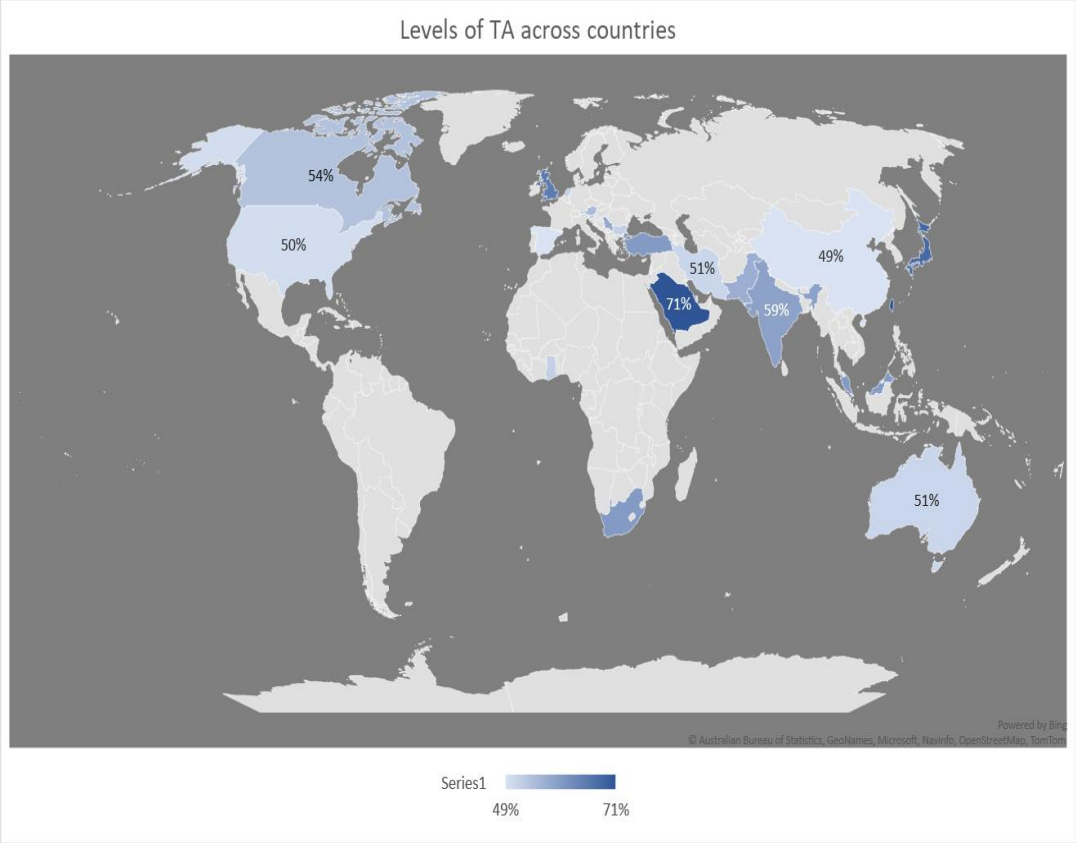


Table 4. 1 Levels of TA across countries

	N	TA Index	Combined standard deviation (σ)	+ 2-Sigma	- 2-Sigma
More than one study per country					
Canada	1146	54%	1%	55%	52%
China	848	49%	10%	70%	28%
Germany	541	57%	2%	61%	54%
India	451	59%	6%	71%	47%

Iran	430	51%	18%	87%	15%
Malaysia	1158	60%	5%	70%	50%
Pakistan	1912	57%	4%	66%	48%
Saudi Arabia	390	71%	6%	82%	59%
Spain	348	49%	10%	70%	29%
Taiwan	857	71%	11%	93%	48%
Turkey	756	60%	12%	84%	36%
UK	1055	65%	7%	79%	50%
US	5049	50%	9%	68%	31%
One study per country					
Australia	148	51%			
Austria	284	55%			
Bulgaria	151	52%			
Ghana	198	52%			
Israel	216	54%			
Japan	53	68%			
The Netherlands	88	52%			
Serbia	263	58%			
Slovenia	245	52%			
South Africa	102	60%			

The countries can be divided into groups from the highest TA to the lowest based on the index value: > 70 is high, 60–69 is above average, 51–59 is average, and < 51 is low. Saudi Arabia (71) and Taiwan (71) have high TA, the UK (65), Japan (68), South Africa (60), Turkey (60), and Malaysia (60) are above average, and China (49) and the US (50) are low. The other countries are categorised as average.

To sum up, the differences in TA should not be claimed to be cultural only as China and the US are in the same category and Saudi Arabia and Taiwan demonstrate the same level of high TA. Thus, both educational settings and cultural factors could play a significant role in explaining the possible differences in TA across countries. This warrants further investigation and is addressed in this thesis through the qualitative cross-cultural comparative study.

At the university level, only one paper (Ringesisen et al., 2010) undertook a cross-country comparison of TA between Germany and South Africa. This is in contrast to the secondary and primary school contexts, in which several papers have made comparisons across countries. For example, Sharma and Sud (1990) found that TA in Eastern countries was higher compared to others. As the university level, however, there is a

significant gap in the body of knowledge assessing and theorising the differences in TA across the globe that would enable countries to learn from each other and mitigate issues with TA or avoid aggravating it. This research supports the proposition made in previous papers (e.g. Hembree, 1988; Zeidner, 1998) that TA could differ across countries. This the first systematic review to seek similar evidence among students at university level. In addition, my research observed that TA in countries that could be considered collectivist and masculine was high, for example Saudi Arabia and Japan. Moreover, Toyama and Yamazaki (2022), in a review of 106 studies in 35 countries, identified a relationship between collectivism and individualism and TA, namely that TA is associated positively with collectivist cultures and negatively with individualist cultures at the university level. In addition, Lowe et al. (2021c) in their empirical study of Singaporean and American students suggested that masculinity/competitiveness was associated with TA.

However, the studies had methodological limitations as although all constructs were assessed similarly, there were some semantic and structural differences, as noted in section 4.3. Nonetheless, the findings are still meaningful due to the significance of the differences and the strong association with the parameters of collectivism and masculinity.

4.5 RO3: How Do Different Assessments shape Experiences of TA?

This section aims to examine the role of differences in assessment type on students' experiences and levels of TA. Before proceeding to the analysis of differences in TA resulting from the different components of written assessments and assessment format, I first outline the current state of the art in the literature regarding the range of assessment types to identify weaknesses in the study of TA.

4.5.1 Differences in TA across assessments

The majority of papers (N = 50, 61.7%) included in the review focused on TA related to written examinations. Several papers (N = 4) addressed computerised examinations undertaken in an assessment centre and one paper focused on a computerised examination sat at home. Eight papers compared computerised and written examinations. Thus, most papers (N = 63, 77.7%) focused on time-based examinations, i.e., written and computerised. Several papers (N = 9, 12.3%) looked at oral and listening examinations, 1 paper compared a listening examination and written examination, and 2 compared oral assessments and written examinations.

Measures of TA are limited in relation to non-time-based examinations. Only 8 (9.8%) papers compared coursework (N = 3), peer assessments (N = 1) and collaborative assessment (N = 4) versus written examinations. This suggests a prevalent view that TA is largely related to the written examination format (online or offline) and oral assessments (presentation and speaking). Thus, there is a gap in literature on TA arising from the lack of study of non-written examinations, which is focused on in the qualitative study in this thesis.

In addition, most of the papers published on TA concerned the undergraduate level (e.g. Ali et al., 2015; Azmi et al., 2014; Baig et al., 2018; Farooqi et al., 2012), whereas there are very few papers on the post-graduate level (e.g. Bay & Pacharn, 2017; Marshall & Jones, 2003). At the post-graduate level there are more innovative assessment types and less reliance on time-based assessment, at least in Europe (Fernandes, 2020; Pereira et al., 2017), which requires that research instruments are suited to assess these innovative assessments. For instance, assessment based on coursework prevails in the UK and there are few written examinations compared to Saudi Arabia, where time-based assessments predominate (Alharethi & AlDighrir, 2014; González et al., 2009). Currently, it seems, there is a gap in assessing and evaluating TA in relation to non-time-based assessment and a lack of comparison of TA symptoms within education systems focused on coursework (the UK) versus education systems dominated by time-based assessment (Saudi Arabia)

4.5.2 Components of written assessments

The first aspect of understanding the differences in TA across different educational settings is to consider the use of different types of questions in written assessments. In the review, eight papers defined and compared TA arising from different components of written tests: multiple choice questions (MCQ), short essays and extended matching questions (EMQ) (Guraya et al., 2018).

Open-book assessments are reported to be significantly less likely to lead to TA than cheat sheet examinations based on Pre-examination Worry-Emotionality Scale (Gharib & Phillips, 2012; Gharib et al., 2012). However, this conflicts with the findings of Ambala (2019), who used a single-item measure to assess TA and reported that closed-book examinations are the most stressful, then open-book assessments, while cheat sheet examinations are the least stressful. Both studies had relatively similar sample sizes (N = 220 vs N = 198, respectively) but the former was undertaken in the and the latter in Ghana. Thus, the contrasting results could be attributable to country-level differences in

terms of the educational systems, differences in the TA measures applied, or the statistical models used. Ambala (2019) used analysis of variance (ANOVA), gives an indication of the existence of differences between groups, but not the differences between two aspects. In other words, ANOVA cannot does not demonstrate the significance of differences between cheat sheet examinations and open-book examinations, but rather that the three groups differ significantly (closed-book = 3.92, open-book = 1.98, cheat sheet = 1.83), whereas a t-test can give a definitive answer concerning the differences between the cheat sheet and open-book examinations.

The current body of knowledge is limited in terms of defining the differences between TA for different assessment methods and no studies have yet illustrated the role of culture in explaining differences in TA across different assessment methods.

4.5.3 Written assessment versus other forms

The section proposes that exposure to different assessment types plays a role in explaining TA. The assessment types highlighted in the literature are written, computer-based, speaking, listening, collaborative, homework and peer examination. The analysis here will cover the papers that have compared these (N = 15) and consolidate the results to discuss them.

All the papers compared, except two, found that written examinations in paper format resulted in significantly higher TA scores than those in computerised format, except two papers. The exceptions were a paper in the US (Cassady & Johnson, 2002) which found that the computerised format resulted in greater TA than the paper format and another in Iran (Kolagari et al., 2018) which did not find significant differences. However, the latter result could be due to the limited samples (N = 20 for the paper format vs N = 19 for the computer format) and the use of *t*-tests; the fact that the data were not normally distributed, and small sample size argued against using a parametric test to generate valid and significant results. It seems, though, that there is an argument that written assessments are more triggering than computerised assessments in general and these could be factors requiring further exploration through qualitative methods regarding setting examinations.

Only five papers compared individual and group written assessments. Four examined the differences statistically, three using *t*-tests and one through analysis of covariance (ANCOVA). With the exception of Bay and Pacharn (2017), the studies found that individual written assessments led to higher TA than group/collaborative assessments.

However, only in Kapitanoff and Pandey's (2018) study was the difference significant. All the studies were undertaken in North America, four in the US and one in Canada.

Only two studies evaluated TA arising from presentations used for assessment. Marshall and Jones (2003), employing the STAI, found a significant difference between the presentation and written format among students in the UK, with the seminar presentation resulting in significantly higher TA. Núñez-Peña et al.'s (2016) study, undertaken in Spain with a sample of 168 students, used the Single-Item Math Anxiety (SIMA) scale and identified higher scores for oral presentation (M = 2.7) than for MCQ (M = 1.7) or open questions (M = 2.02). Thus, there is limited evidence that presentations may triggering more TA than written assessments.

In summary, it is difficult to draw conclusions regarding the impact of different assessment types in inducing TA symptoms and their severity. The literature comprises a mix of measurement tools and statistical models, leading to inconsistent results. However, such evidence as there is suggests that TA could be higher in written assessment versus computer-based assessment, but higher still in presentations, and higher in group work than individual assessment. The studies and results are presented in Table 4.2.

Table 4. 2 Differences in TA based on assessment type

Author (s)	Assessment (score)	Test Model	Significant	TA Measure	Country	N
Components of written assessment						
Ali et al. (2015)	Pass and fail (2.4) GPA (2.8)	*t*-test	$p < 0.01$	SIM	Pakistan	387 Pass and fail (98) GPA (289)
Ambala (2019)	Close book (3.92) Open book (1.98) Cheat sheet (1.83)	ANOVA	$p < 0.001$	SIM	Ghana	198
Brown and Tallon (2015)	Pre-lecture quizzes MCQ (4.16) No quiz (4.71)	*t*-test	$p < 0.05$	SIM	US	70 Pre-quiz (36) None (34)
Gharib and Phillips (2012)	Open book (22.92) Cheat sheet (23.98)	*t*-test	$p < 0.05$	PEWES	US	209
Gharib et al. (2012)	Psychology Open book (22.92) Cheat sheet (23.98) Statistics Open book (20.62) Cheat sheet (26.86)	*t*-test	$p < 0.05$	PEWES	US	Psychology (220) Statistics (46)
Guraya et al. (2018)	MCQ (837) Short essays (704) EMQ (649)	–	–	SIM	Saudi Arabia	191
Pettijohn and Sacco (2007)	Unit MCQ exam Sequential order (2.79) Reverse (2.85) Random (3.02) Final MCQ exam Sequential (3.52) Reverse (3.43) Random (3.38)	–	–	SIM	US	66

Rohe et al. (2006)	Graded group (36.7) Pass-fail group (31.7)	Two-sample Wilcoxon rank sum test	NS	TAI	US	81 Graded group (41) Pass and fail (40)
Written vs computer						
Baig et al. (2018)	Written (3.912) Computer (2.487)	*t*-test	$p < 0.001$	WTAS	Saudi Arabia	199 Written (89) Computer (110)
Cassady and Johnson (2002)	Written (take home-open book) (61.49) Computer (62.45)	–	–	CTAS	US	64 Written (57) Online (58)
Cassady and Gridley (2005)	Examination (71.07) Computer (68.08)	–	–	CTAS	US	156 Written (65) Computer (91)
Kolagari et al. (2018)	Written (11.32) Computer (11.94)	*t*-test	NS	STAS	Iran	39 Written (20) Computer (19)
Schult and McIntosh (2004)	Written (7.71) Computer (5.45)	–	–	SACS	US	(265) Written (102) Computer (163)
Seeley et al. (2018)	Written (39.76) Computer (34.89)	*t*-test	$p < .001$	CTAS	US	46 The same group
Stowell and Bennett (2010)	Written (32.3) Computer (34.0)	–	–	AEQ	US	69 Written (34) Computer (35)
Stowell et al. (2012)	Written (2.49) Computer (2.71)	*t*-test	$p < .05$	AEQ	US	61 Counterbalance

Written vs collaborative						
Bangert (2003)	Written (25) Collaborative (Peer) (23)	ANCOVA	NS	MARS	US	Written (20) Collaborative (14)
Bay and Pacharn (2017)	Written (25.3) Group exam (26.2)		NS	PEWES	Canada	47 Counterbalance
Breedlove et al. (2004)	Written (18.20) Collaborative (18.13)	*t*-test	NS	CTAS	US	131 Written (40) Collaborative (91)
Kapitanoff and Pandey (2018)	Written (43.88) Collaborative (37.08)	*t*-test	$p < 0.001$	TAI	US	Written (51) Collaborative (51)
Pandey and Kapitanoff (2011)	Written (40.85) Collaborative (39.31)	*t*-test	NS	TAI	US	38 Random assignment
Written vs presentation						
Marshall and Jones (2003)	Written unseen exam (47.53) Seminar presentation (60.00)	ANOVA	$p < .05$	STAI	UK	Written (15) Presentation (10)
Núñez-Peña et al. (2016)	MCQ (1.7) Open question (2.02) Oral presentation (2.7)	–	–	SIM	Spain	168 Same All

Notes: NS= non-significant

4.6 Summary

This chapter has reviewed 81 papers published from 2000 to 2019 on TA at the university level to answer three main questions: How is TA measured? How does TA differ across countries? How do different assessments shape TA?

The first question concerned the measurement of TA. This research is the first to consolidate and examine the different measures of one construct (TA) from 2000 to 2019. The main finding is that the researchers have used different measures, the most common being TAI (Spielberger, 1980), the use of single-item constructs prevails and not all constructs assess TA similarly. TA has been conceptualised as comprising two constructs: emotions and worry (Liebert & Morris, 1967) and consistent with this, Spielberger's (1980) TAI is the most common measure. However, studies have predominantly operationalised TA as one construct not two, despite there being no theoretical basis for this. The use of single-item constructs hinders the capacity to compare results because of differences in the measures and the inability of single-item constructs to provide reliable results.

The second question concerned differences in TA between countries. There is a gap in the literature in terms of cross-country assessments as existing studies are clustered mainly in five countries: the US, Pakistan, the UK, Taiwan and Iran. Most countries are not represented at all. While there appear to be significant differences in TA between countries, there are issues in interpreting the evidence due to methodological weaknesses, including the lack of a standardised measure of TA. This thesis proposes that there are differences in TA that are not only attributable to cultural factors or the educational settings alone; rather they could result from a mix of factors which are framed in this research in relation to bioecological dimensions.

The third research question concerned the relationship between differences in the assessment type and TA. There is mixed evidence demonstrating differences in TA arising from paper-based vs computerised and other types of assessment (i.e. examinations, peer review, homework and collaborative work). This research supports the findings of two previous reviews: one conducted by Butler-Henderson and Crawford (2020) on studies implemented in the primary and secondary school contexts (N = 38) from 2009 to 2018 and the other conducted by Lyndon et al. (2014) on studies of medical students (N = 23) from 1991 to 2014. These found differences in TA between online and paper-based examinations and between different types of medical assessment (open-

book, patient assessment and MCQ), but the results were inconsistent. This indicates that the assessment type does not influence TA alone but rather a combination of factors could lead to it.

To conclude, there are several points to take forward in this thesis. First, in making comparisons between countries, it is necessary to consider the two dimensions of TA as separate constructs. Second, the role of differences in the educational context (including assessment type) and cultural factors need to be explored through in-depth analysis of qualitative data. These points will be addressed in the subsequent following chapters.

Chapter 5. Quantitative Results

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5.1 Introduction

This chapter examines the trends in data for TA and DASS among four groups of university students: local British students, local Saudi students, Eastern international students, and European international students. The chapter is structured as follows: Section 5.2 addresses the trends in data regarding TA and DASS among four groups, and Section 5.3 addresses the open-ended questions.

5.2 Descriptive Statistics

This section explores the levels of TA and DASS among four groups of university students: local British students, local Saudi students, Eastern international students, and European international students. Table 5.1 presents the descriptive statistics for the study variables on each measure, including the mean and standard deviation for all groups. Table 5.2 details the prevalence (%) of variables for each measure.

TA

TA comprises two dimensions: emotion and worry. The level of TA-emotionality is found to be highest among European international students (M = 22.41, SD = 5.73), followed by local British students (M = 20.30, SD =6.38), then Eastern international students (M = 19.84, SD = 5.84), and lowest for local Saudi students (M = 15.74, SD =5.16). Levels of TA-emotionality in this study for European international students and local British can be categorised as high, while for Eastern international and local Saudi students they are classified as moderate.

Two out of three European international students, one out of two local British students and one of two Eastern international students experience high levels of emotion-related TA, while for local Saudi students it is one in five. Local British and Eastern international students present similar rates.

Regarding TA-worry, the results reveal that as with TA-emotionality, Eastern international students scored the highest (M = 17.83, SD = 5.79), followed by European international students (M = 17.38, SD =4.47), then in the same range local British students (M = 16.96 , SD =5.66). Levels of TA-worry for Eastern and European international and local British students were classified as moderate, while for local Saudi students, they were in the low moderate range (M = 13.38, SD =4.27).

One in three Eastern international students and one in four European international and local British students have high TA-worry, against fewer than one in ten local Saudi students (6.53%).

The overall level of TA is highest among international students, both European international students (*M* = 50.76, *SD* =11.33) and Eastern international students (*M* = 48.15, *SD* =13.09). The Levels of TA among local British students is (*M* = 47.52, *SD* =13.81) are relatively high matching that of international students, classified as moderate. The level is higher than for local Saudi students (*M* = 38.35, *SD* =10.28).

Close to half the European international students (43.58%) report having high TA, while one out of three Eastern international students (30.7%) and local British students (34.59%) report the same issue. Local Saudi students are far below these figures, with only one in ten (10.4%) having high TA.

To sum up, Eastern international students present higher levels of TA than local Saudi students on all dimensions (emotionality, worry and total), while European international students, local British students and Eastern international students are relatively similar. This suggests that the educational context and assessment could be a factor that contributes to TA as the variations in patterns appear to be mainly due to the context of the study, not origin, as the highest levels of TA are found among international students and local British students in the UK in contrast to local Saudi students. This finding will be investigated further in the qualitative analysis to explore how the educational setting can predict variations in TA across different countries (see Chapter 7).

Anxiety

Anxiety is the highest among European international (*M* = 17.84, *SD* = 12.72) and Eastern international (*M* = 15.41, *SD* = 9.46) students. Following are local British (*M* = 14.40, *SD* = 11.08) and local Saudi (*M* = 9.98, *SD* =9.87) students, with the former scoring higher. More than half of the Eastern international students (52.4%) and European international students (51.24%) had severe to extremely severe anxiety, in contrast to only a third of local Saudi students (31.65%) and local British students (38.9%). These results could be due to the higher education context and educational practices as both Eastern international and European international students who study in the UK again present more anxiety than local Saudi students.

Depression

Depression is highest among European international (*M* =18.61, *SD* =11.86) and local British (*M* = 15.83, *SD* =11.21) students and lowest among Eastern international (*M* =

13.25, *SD* =9.67) and local Saudi (*M* = 11.63, *SD* = 9.06) students. These former levels of depression are classified as moderate, while the latter are classified as mild (Lovibond & Lovibond, 1995). One in five European international students (23.07%) and local British students (21.38%) reported severe depression, compared to one in ten local Saudi students (7.8%) and Eastern international students (11.05%). These results suggest that depression could be a cultural factor rather than education-based, given the variations in trends between Eastern and Western students.

Stress

Around one in two European international students reported severe to extremely severe stress (51.27%), compared to one in three local British students and around one in five local Saudi students (20.17%) and Eastern international students (20.42%). Stress, similar to depression, seems to be a cultural factor because the highest levels are evidenced among European international (*M* = 22.87, *SD* =10.50) and local British (*M* = 19.45, *SD* =9.92) students, and the lowest levels are among local Saudi (*M* = 15.79, *SD* = 10.60) and Eastern international (*M* = 16.35, *SD* =10.16) students. This is an indication that stress is related more to the cultural context than the educational context, unlike anxiety

Sleep quality

Saudi local students reported the highest sleep quality (*M* = 6.46, *SD* = 2.39), higher than local British students (*M* = 5.79, *SD* = 2.39), Eastern international students (*M* = 5.64, *SD* =1.99) and European international students (*M* = 5.44, *SD* = 2.49), although all were categorised as average (Leibowitz et al, 2016). Only one in six local Saudi students (18.2%) reported poor to very poor sleep quality, compared to about one in five Eastern international (21.7%) and local British (22%) students, and about one in four European international students (25.63%). This is an indication that the education system is likely key to understanding variations in sleep quality.

DASS were not directly investigated in the qualitative study; however, these factors provide crucial insights into the mental health of students and aid in understanding the qualitative findings.

Procrastination

The European international (*M* = 49.23, *SD* =15.81) and local British (*M* = 48.33, *SD* = 12.03) students scored highest for procrastination compared to local Saudi (*M* = 42.24, *SD* = 10.96) and Eastern international (*M* = 43.93, *SD* =9.54) Students, the latter both being categorised as at the low level (Tuckman, 2002). Among the European

international students, about (43.58%) reported high and very high procrastination, compared to about one in four British students (28.29%), one in eleven Eastern international students (8.9%) and about one in ten local Saudi students (11.1%). Thus, the European international students and British students present higher level of procrastination than the local Saudi students and Eastern international students. This indicates that procrastination could be due to cultural factors, and this will be explored further in the qualitative section (see Chapter 8).

Table 5. 1 Means, standard deviations and range values for TA, DAS, sleep disorder, and procrastination among different groups of students.

Variables	**Local British** (N= 159)			**Local Saudi** (N=153)			**Eastern International** (N=78)			**European International** (N=39)		
	M	*SD*	Range	*M*	*SD*	Range	*M*	*SD*	Range	*M*	*SD*	Range
TA	47.52	13.81	20–80	38.35	10.28	20–63	48.15	13.09	22–77	50.76	11.31	25–75
TA-worry	16.96	5.66	8–32	13.38	4.27	8–27	17.83	5.79	8–32	17.38	4.47	9–27
TA-emotionality	20.30	6.38	8–32	15.74	5.16	8–31	19.84	5.84	9–32	22.41	5.73	9–32
Procrastination	48.33	12.03	19–76	42.24	10.96	15–72	43.93	9.54	19–66	49.23	15.81	19–72
Depression	15.83	11.21	0–42	11.63	9.06	0–36	13.25	9.67	0–34	18.61	11.86	0–42
Anxiety	14.40	11.08	0–42	9.98	9.87	0–36	15.41	9.46	0–38	17.84	12.72	0–40
Stress	19.45	9.92	0–42	15.79	10.60	0–42	16.35	10.16	0–38	22.87	10.50	2–40
Sleep Quality	5.79	2.39	0–10	6.46	2.39	1–10	5.64	1.99	1.25–9.06	5.44	2.49	0.94–10

Table 5. 2 Prevalence (%) of TA, DAS, Sleep Disorder, and Procrastination.

		Local British		Local Saudi		Eastern International		European International	
		N	%	*N*	%	*N*	%	*N*	%
TA	High (≥ 53.5)	55	34.59	16	10.4	24	30.7	17	43.58
	Moderate (26.6–53.4)	100	62.89	124	81.04	52	66.6	21	53.84
	Low (≤ 26.5)	4	2.5	13	8.4	2	2.5	1	2.56
TA-worry	High (21–32)	41	25.78	10	6.53	24	30.76	9	23.07
	Moderate (11–20)	104	65.40	100	65.35	46	58.97	28	71.79
	Low (0–10)	14	8.8	43	28.10	8	10.25	2	5.12
TA-emotionality	High (21–32)	73	45.91	30	19.60	34	43.58	28	71.79
	Moderate (11–20)	77	48.42	101	66.01	41	52.56	9	23.07
	Low (0–10)	9	5.66	22	14.37	3	3.84	2	5.12
Procrastination	Ver high (65–80)	13	8.17	2	1.3	2	2.5	6	15.38
	High (57–64)	32	20.12	15	9.8	5	6.4	11	28.20
	Moderate (50–56)	30	18.86	23	15	14	17.9	4	10.25
	Low (35–49)	63	39.62	71	46.4	46	58.9	10	25.64
	Very low (> 35)	21	13.20	39	25.4	11	14.1	8	20.51
Depression	Extremely severe (28+)	34	21.38	12	7.8	9	11.5	9	23.07
	Severe (21–27)	18	11.32	16	10.4	7	8.9	8	20.51
	Moderate (14–20)	29	18.23	29	18.9	27	34.6	8	20.51
	Mild (10–13)	22	13.83	24	15.6	3	3.8	2	5.12
	Normal (0–9)	56	35.22	72	47.05	32	41.02	12	30.76
Anxiety	Extremely severe (20+)	49	30.81	36	23.5	29	37.1	18	46.15

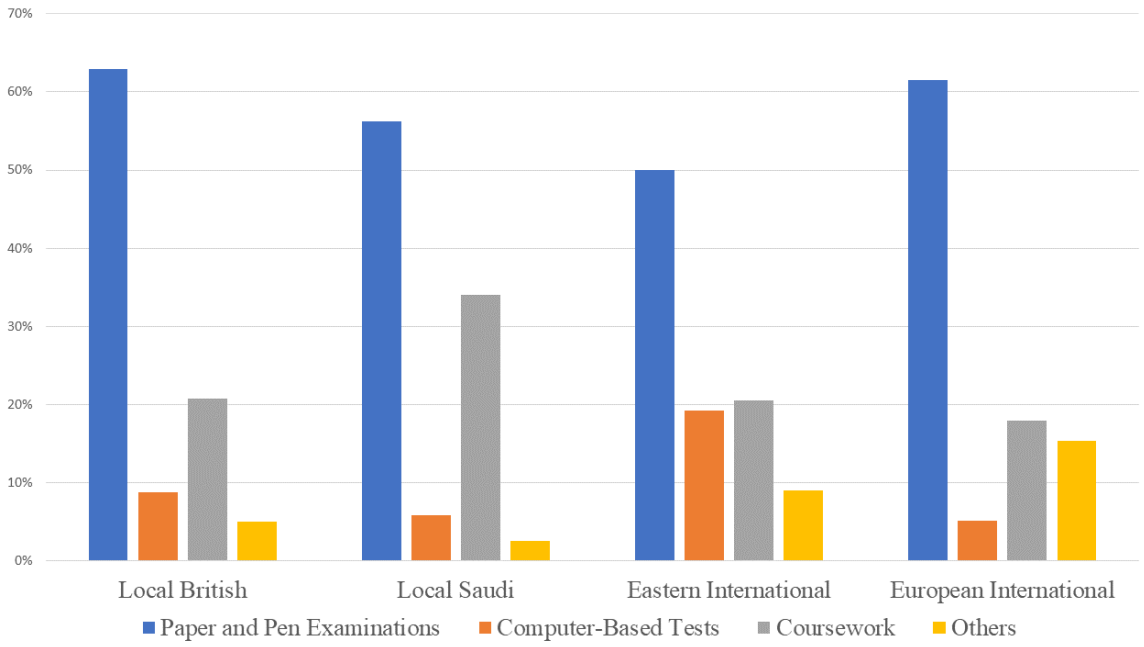
	Severe (15–19)	13	8.17	14	9.15	12	15.3	2	5.12
	Moderate (10–14)	36	22.64	24	15.6	11	14.1	5	12.82
	Mild (8–9)	13	8.17	4	2.6	7	8.9	1	2.56
	Normal (0–7)	48	30.18	84	54.9	19	24.3	13	33.33
Stress	Extremely severe (34+)	19	11.94	11	7.1	4	5.12	7	17.94
	Severe (26–33)	26	16.35	20	13.07	12	15.3	13	33.33
	Moderate (19–25)	24	15.09	25	16.3	20	25.6	6	15.83
	Mild (15–18)	25	15.72	22	14.3	10	12.8	3	7.69
	Normal (0–14)	65	40.88	75	49	32	41	10	25.64
Sleep Quality	Very good (8–10)	36	22.64	52	33.9	13	16.6	9	23.07
	Good (6–8)	43	27.04	40	26.14	17	21.7	4	10.25
	Average (4–6)	45	28.30	33	21.5	31	39.7	16	41.02
	Poor (2–4)	24	15.09	21	13.7	16	20.5	8	20.51
	Very poor (0–2)	11	6.91	7	4.5	1	1.2	2	5.12

5.3 Open-Ended Questions

Students' perceptions of assessment types

Comparing the contexts, 62.89% and 61.3% of local British and European international students respectively perceived pen-and-paper examinations to be the greatest trigger of TA, while only 56.2% of local Saudi students and 50% of Eastern international students were of the same view. The proportions of local British, Eastern and European international students who perceived coursework as triggering their TA were 20.7%, 20.51% and 18% respectively, whereas for local Saudi students the percentage increased to 33.98%. In the UK, coursework predominates as an assessment method, while in Saudi Arabia pen-and-paper examinations are most common. This demonstrates that students feel unfamiliar assessment methods trigger TA (Nihea & Chiramanee, 2014). The highest number of students in all contexts argued that TA was triggered mostly by pen-and-paper examinations. These findings are presented in Figure 5.1.

Figure 5. 1 Students' perceptions of assessment types that trigger their TA**.**



An open question was asked about the main sources of TA. The sources are classified into individual and mesosystem. The most common source comprised individual-level factors followed by mesosystem factors. These findings are presented in Appendix C.1 and C.2.

Individual factors

Individual factors are broken down into fear of failure (38.28% of the global sample), physical and mental health (16.72% of the global sample), lack of confidence in cognitive ability (12.26%), and perception of lack of preparation (9.66%). Fear of failure predominated among local British studies with about one in two reporting this issue against one in three local Saudi, Eastern international and European international students. This was not expected as the literature suggests Eastern students will experience fear of failure to a great extent due to family expectations and societal pressures (Peters & Stefanek, 2012). The cultural factors will be investigated further in the qualitative section.

The second issue is physical and mental health, codified in terms of DAS and sleep disorder as “panic”, “stress”, “sleep” and “anxiety”. In all, 23% of local British students, 22.22% of European international students and 18.51% of Eastern international students attributed their TA to their mental health, while only 5.6% of local Saudi did so. This could be because certain characteristics of the educational system trigger mental health issues among students in the UK, such as the prominence of coursework and the short duration of master's degree programs lasting only one year (Coneyworth et al., 2020; Lewis & Bolton, 2023).

The third aspect is lack of confidence, which is codified in phrases such as “I will forget” and “I will not remember”. Here the local Saudi students presented the highest proportion (one in five, 18%), higher than local British (9.52%), Eastern international (11.4%) and European international (7.4%) students. This could be because the Saudi education system is highly reliant on memorisation (Gregory & Bend, 2019), unlike the British system, which includes more coursework.

The fourth aspect is the perception of the lack of preparedness, codified in statements such as “I feel I am not prepared enough” and “I always feel underprepared”. The highest proportion comprised European international students (22%), followed by local British students (11%); local Saudi and Eastern international students were the lowest. This may well be related to procrastination as more local British and European international students reported struggling with this, as identified in the descriptive analysis (see section 5.2). These findings are presented in Appendix C.1.

Mesosystem factors

The second main theme concerns mesosystem factors (See Chapter 2, Literature Review, Section 2.4.3) as represented in 36.5% of the responses. The factors most cited were time

pressure (18.21%), course load (10.78%), type of assessment and questions (9.29%), and the teacher's role (5.94). These factors predominated among local Saudi students. In terms of time pressure, the local Saudi students struggled most, about a third of them reporting this issue (29.2%), against 14% of local British students, 7.4% of Eastern international students and 11% of European international students. The reason could be that timed examinations are the prevalent method of assessment in Saudi Arabia (Alharethi & AlDighrir, 2014; Darandari & Murphy, 2013). Similarly, course load was an issue for one in five Saudi students (18%), who were used to memorisation, in contrast to local British students (6.34%), European international students (7.4%) and Eastern international students (11.11%). The last aspect here is the relationship between the teacher and student. 15% of local Saudi students cited issues with negative teacher characteristics, in contrast to local British students (0.79%), Eastern international students (0%) and European international students (3.7%). In Saudi Arabia, a high-power distance society (Hofstede, 2011), the teacher has considerably greater power than in the British education system. These findings are presented in Appendix C.2.

To sum up, time pressure and course load are educational-based factors, reflecting the fact that the prevalent assessment methods in Saudi Arabia are characterised by memorisation and timed examinations rather than coursework. The last factor, i.e. the teacher–student relationship, is also an educational factor influenced by the cultural norms in the Saudi context. Mesosystem and education system factors will be investigated further in the qualitative phase (See chapter 7)

Coping strategies

Coping strategies differ based on the context. Local British students (40%) and European international students (31.2%) reported using breathing and yoga, while only 24% of local Saudi students and 27% of Eastern international students adopted the same strategies. Local Saudi students' preferred strategy in dealing with TA is preparation and planning, mentioned by 40%, which is compatible with the finding that Saudi students score low in procrastination. Only 17.47% of local British students, 11.11% of Eastern international students and 12.5% of European international students reported using this strategy. It is unclear whether this is due to the educational settings; the Saudi educational setting could be more fixed and stable, allowing the students to prepare, while in the UK there are varied assessments and requirements, perhaps making preparation more difficult. The qualitative analysis in Chapter 8 will address Research Objective 3,

defining the different coping strategies in each context and culture that could alleviate or exacerbate TA symptoms.

Local Saudi students (32%) and Eastern international students (27%) reported engaging in self-talk (see section 8.3.2); few local British students did so (8%) and it was not evidenced at all among European international students. This seems to be a cultural factor, being clustered in Saudi and Eastern international students. The coping strategies used to alleviate or exacerbate TA will be investigated in Chapter 8.

For Eastern international students, the highest proportion (33.33%) engaged in distraction activities, such as playing games or watching television. Other groups were relatively similar in this regard, ranging from 8% to 13%. There is no clear justification here, as Eastern international students have a lower tendency to procrastinate, but in the case of extreme TA, their psychological defence mechanisms may lead them to escape from their academic obligations by engaging in entertainment activities.

Other coping strategies are also noted in this research, with 17.28% of students reporting engaging in physical activities and sports and few differences across groups. Interestingly, though, seeking counselling was scarcely cited as a coping strategy (4.3%), with only 4.8% of local British students and 12.5% of European international students mentioning it; counselling was not evidence at all among local Saudi or Eastern international students. Similarly, taking medication was only reported by local British students (about one in twelve, 8.73%) and European international students (about one in ten, 11%); again, there was no evidence of this among local Saudi or Eastern international students. In contrast, being close to God was evidenced among local Saudi and Eastern international students (8% and 5%, respectively), but not among European international or local British students. Finally, 21% mentioned no coping strategies, predominantly local British students (27.18%) and local Saudi students (8%).

To sum up, certain coping strategies characterise the Saudi environment, such as preparation and planning, while breathing techniques are more common among British, European international and Eastern international students in the UK. There were clear demarcations between making recourse to counselling and medication and being close to God in terms of context, whereas exercise and engaging in sport were represented in all groups. These findings are presented in Appendix C.3.

5.4 Conclusion

This chapter has presented the trends in data for TA and DASS among four groups of university students: local British students, local Saudi students, Eastern international

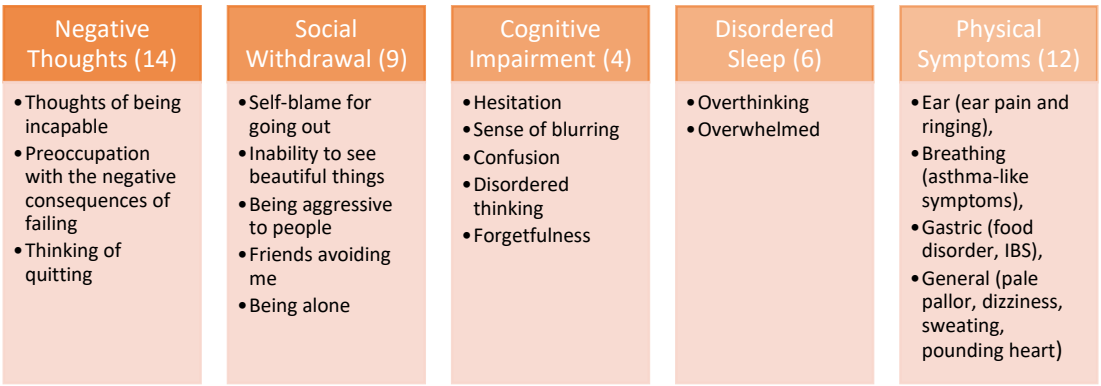
students, and European international students. These descriptive findings provide crucial insights that will inform the subsequent qualitative chapters.

Chapter 6. Experiences of TA

6.1 Introduction

This research defines experiences of TA as comprising five main themes: atypical negative thoughts, social withdrawal, cognitive impairment, sleep disorder and physical symptoms (see Figure 6.1). These were evidenced in data by 14, 9, 4, 6 and 12 students respectively and were represented in all the groups of students (local and international). This chapter covers each of these aspects of TA in detail.

Figure 6. 1 TA Experience themes



6.2 Theme 1: Negative thoughts associated with TA

Thought is the mental process by which a person perceives and gives meaning to the self, surrounding objects and the environment (Hawkley, 2013). Negative thoughts in this study fell under three subthemes: thoughts of being unable/incapable (6 students), preoccupation with the negative consequences of failing (12 students) and thinking of quitting (4 students).

6.2.1 Thoughts of being incapable

The first negative thought concerned the self as incapable. This is defined as an individual's negative perception of the self and ability compared to the perceived requirements aligned with the examination context (the test, school, and societal requirements, detailed further in Chapter 7). This was a prevalent theme, reflected in the perceptions of six out of the fifteen students as being evident in all groups (see Table 6.1).

Table 6. 1 Thoughts of being incapable.

Subtheme 1	Number	Description
Thoughts of being incapable	6 students 3 local British 1 local Saudi 1 Chinese international 1 Pakistani international	The individual's negative perception of the self and ability compared to the perceived requirements aligned with the examination context.
• Feeling trapped	2 local British	The limited options for escape give a sense of being trapped. The lack of ability to escape leads to feelings of burnout and frustration.
• Burning out	1 Chinese international 1 Pakistani international	

Thinking themselves incapable in the face of the programme and test requirements triggered TA for the interviewees. For instance, Ahlam, Abduallah and Diyala, local and international Saudi students undertaking Master's degrees, found that the assessments required critical thinking, which was new to them and anxiety provoking:

> *"I felt myself to be **too little** for a Master's degree. I felt that I **wasn't worthy of** getting a Master's degree …. it was the first year that I studied that subject. I felt I was not up to the standard of that the Master's degree that I had registered for." (Ahlam, local Saudi)*
> *"I feel always **I cannot pass** this exam. I always like feel that this exam, it's a **very high level**, it's not like my level and [I have a] **fear of failure.**" (Diyala, Saudi international)*
> *"Fear (I feel afraid) of not doing well in the test, lack of confidence in the way I studied." (Abdullah, local Saudi)*

Sara, a British student in the UK, also cited negative thinking as an aspect of TA when asked about her thoughts in the vignette:

> *"If you've got an individual with **low self-esteem**, they're already thinking **badly of themselves**, they already **don't think they're worthy**, they already **don't have the confidence** … a TA that comes with it." (Sara, local British)*

She confirmed this in reflecting on finding the move from level 6 to level 7 in writing stressful:

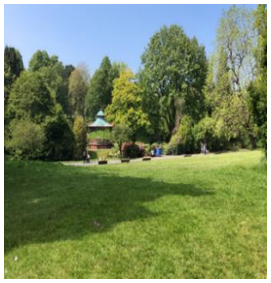
> *"The level of writing, you go from level 6 to level 7. There's a higher standard expected of you to meet that, and you need to sort of strive to do that." (Sara, local British)*

Thoughts of being incapable may lead to different states: feeling trapped and burning out. Feeling trapped is defined as a depressive situation in which the person perceives his/her freedom to be constrained; there may be the possibility of escape, but it is perceived to be limited**.** This emotion stems from a sense of hesitancy and negative thoughts of the possibility to quit, which are related to the sense of being trapped. One of the British students, Nona, recounted that the feeling of being trapped stemmed from the endless challenges and the notion that there was no attainable end due to the difficulty of the examination:

> *"It felt like there wasn't going to be a way out that was positive. It felt like I was going **to be stuck in that tunnel forever** and I was going to be **stuck failing the same assessment over and over again**. Um. And it actually did feel like **a very dark time**." (Nona, local British)*

Nona visualized her TA as an endless dark tunnel that she would never be able to get out of. Andrew, a local British student, visualized a bright picture, which he said was the opposite of the sense of TA (see Figure 6.2).

Figure 6. 2 Representations of experiences of TA

	*"[It] is of a long, quite dark tunnel and there is a little bit of light at the end of the tunnel. Um, but if you can kind of see the image is a little bit blurred and that was because when I took that photograph, I couldn't see anything in the tunnel" (Nona, local British)*		*"I suppose it's the opposite in the sense that it was, it was nice and bright and it was the* ***furthest away from any kind of deadlines****... that it was just a nice* ***summers day****, and it wasn't kind of a, in the shadow of* ***any assessments*** *or any pieces of work that we have to do." (Andrew, local British)*

The second aspect is burning out. Burnout is defined as a state of emotional exhaustion, induced by the experience of long-term stress with no space to take a break or relax. Burnout comes from the perception of being incapable and having no place to escape, the only option available being to proceed regardless of the level of motivation. Burnout was reflected in the accounts of two international students (Pakistani and Chinese). Aliyah, the Pakistani student, had very strong motivation to complete the programme, being an international student who had paid too much for the degree to fail and also wishing to fulfil very strong family expectations. The option to hesitate or to quit was not available. She believed that the future of her family rested on her degree and she had no option but to accept this "pressure":

> *"Exhaustion, pressure, I just wanted to be done with it and this is my this is my attitude every time 'cause I exert myself through a point when I'm really drained and you know, I burn myself out." (Aliyah, Pakistani international)*

Aliyah did not have the luxury of changing programme or postponing courses to another semester and delaying her graduation due to her visa requirements. Her "liberty" was thus constrained:

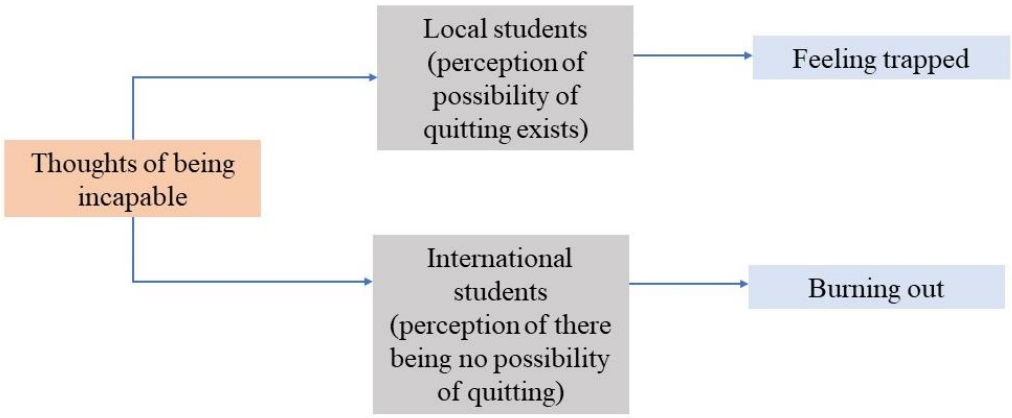
> *"For international students, because you don't have the* ***liberty*** *to be in this country for more than that time period cause then there are issues like immigration,* ***the visa*** *and* ***all the money itself****, and so many things," (Aliyah, Pakistani international)*

Another example was Kelly, a Chinese student in the UK. Similar to Aliyah, her visa and her family expectations did not give her space to escape or delay to take a break. She had

to keep going regardless of the negative emotions she faced and her perception of her incapability:

> *"I would say I'm restless, I couldn't sit still, I have to, I just feel like I need to do something but there's nothing I could do. Yeah." (Kelly, Chinese international)*

Figure 6. 3 Emotions induced by perception of being incapable among local and international students



To synthesize the arguments here, as shown in Figure 6.3, the perception of being incapable induces two different emotions based on the context. When motivation diminishes and the perception of requirements is unbearable, the consequence could be the desire to escape, if there is space for this, or the need to continue with a lack of motivation supplemented with the fear of failing. The local students evidenced the emotions of feeling trapped, while the international students seemed prone to burnout. The probable reason is that unlike those studying locally in their own country, with some freedom to change programme, international students pay substantial fees to study in the UK and their visas are at risk in the case of failure (exemplified by Aliyah, the Pakistani student). Moreover, their families may be highly dependent on their academic achievement. This results in psychological stress as they need to continue with their studies regardless of their feelings of being incapable, which pushes them towards burnout and frustration. Local students are more able to afford to change programme and even school. For local students who feel trapped, there is a psychological space to escape from the situation, whereas international students do not have such a space, which induces burnout and frustration.

6.2.2 Preoccupation with the negative consequences of failing.

Anxiety is associated with one's perception of the inability to cope with the environment (Pritchard & Wilson, 2005). In terms of TA, the results show that it reflects the person's perception of the inability to cope with the negative future consequences of failing.

"Preoccupation of the negative consequences of failing" is defined as the person's atypical thoughts of the consequences of failing the examination on his/her life and in an extreme case, failure may be viewed as the end of the world for the individual. This theme is summarized in Table 6.2 and detailed in the sections that follow.

Table 6. 2 Preoccupation with the negative consequences of failing

Subtheme 2	**Number**	**Description**
Preoccupation with negative thoughts	12 students	The person's atypical thoughts of the consequences of failing the examination on his/her life
• Overthinking	2 local Saudi 1 Pakistani international 1 Lebanese international 1 local British	Constantly thinking of negative consequences leads to feeling overwhelmed and being restless
• Exaggeration of negative thoughts	1 local British 1 local Saudi	Catastrophizing negative consequences
• Fear being a driver of negative thoughts	2 local Saudi 1 Saudi international	Fear leads to negative thoughts and the negative thoughts then lead to fear

Thinking of the negative consequences of failing was the most common theme among the three groups, identified in 12 of the 15 interviews. Examples of thinking of negative consequences were given by both Eastern and European international students:

> *"…you worry, maybe I'm not doing well now, maybe I'm doing. So, then (after thinking of the consequences of failing) you start worrying and anxiety goes up as well." (Paul, Dutch international)*
> *"I feel depressed. Uhm, I just worry too much to keep thinking about what's going to happen in the in the future if I fail." (Aliyah, Pakistani international)*
> *"…from* ***fear of failure and like about my future,*** *sometimes because this is* ***exams it's very important*** *and I have to pass it." (Diyala, Saudi international)*

Preoccupation with negative thoughts presents as three main aspects: overthinking, exaggeration of negative thoughts, and fear as a driver of negative thoughts. In terms of overthinking, it is defined as thinking (about something) too much or for too long. Notable instances were Khalid (local Saudi), Majid, Yousuf and Aliya (international), and Sara (local British). Overthinking about passing and failing and different "what ifs" meant their "brains [did] not stop" until they felt "restless" and overwhelmed by "constant thinking about those negative thoughts":

> *"Most of the thoughts I have is about* ***passing*** *and* ***failing*** *the exam and* ***keep thinking*** *about it until the* ***results are out****. I would have psychological* ***restlessness*** *and* ***overthinking****." (Khalid, local Saudi)*
> *"Imagine if I didn't pass, I keep doing calculations on what I'm unsure about, which mark I'm sure about it, so I want to make sure I pass." (Majid, Saudi international)*
> *"My brain just doesn't stop. It just keeps thinking." (Aliyah, Pakistani international)*
> *"I always be thinking in my head like what if? What if, what, if, what, if." (Yusef, Lebanese international)*

> *"Because you are constantly thinking about those negative thoughts, those worries you know am I gonna fail? You know overwhelmed by the thought that I was probably gonna fail and I didn't get it." (Sara, local British)*

The second aspect is the exaggeration of negative outcomes. Nona and Ahmad both recounted "thinking of the negative consequences of failing" and having a "feeling of failure". The panic arising from potential failure can be catastrophized to include not only failure in the examination but also failure in "everything" for Nona, or "end of the world" for Ahmad:

> *"Actually, that's how I feel. I feel like that at the time because I was, so I was so worried I was **going to fail everything**. I had already told myself I was going to fail. (…) when I did fail then it would be the end of the world. I, yeah, just felt panic. I felt there wasn't, I just didn't feel anything positive at all." (Nona, local British)*
> *"I was thinking to be **the end of the world** if I **failed**. It is simple. Because we **glorify** the exam so much they end up having TA." (Ahmad, local Saudi)*

The third aspect is fear giving rise to negative thinking, i.e. attention bias (Buck, 2018). Three respondents provided evidence that fear may induce perceptions, namely that the fear of failing could relate to a cognitive bias in perceiving the environment as having a negative influence on the events around him/her. A clear example of this was provided by Abdullah, a local Saudi student. When he talked about his TA experience, his fears made him selective, focusing on negative events and the possible negative consequences of each of them. This is illustrated in the following statement, in which he used the emotion to interpret events in explaining his concerns, such as "fear" of "not answering" and "road conditions":

> *"…it's fear, being afraid of not answering any question, not doing well in the test. Also, I fear the road conditions on my way to the university, because I don't want to be late for the test." (Abdullah, local Saudi)*

Similar to Abdullah, Ahlam connected two sentences in a meaningful way. She started with the symptom ("think I am going to fail") and ended with the cause ("I am scared of failing"). Such psychological connections endorse the idea of the emotion leading to the perception:

> *"I think that I am going to fail (…) **I am scared of failing**." (Ahlam, local Saudi)*

Another example was Diyala, an international student, who said when she was nervous, she could not see positive things. Her fear of failure drove her to think negatively about the consequences of the assessment. This indicates that emotions influence perceptions.

> *"I always feel like that's I will fail. I have **like, from fear of failure.** I just keep keep me all the time just like nervous, not focusing for for the positive side" (Diyala, Saudi international)*

To synthesize the results, preoccupation with negative thoughts was the most common theme among the students, as 12 out of 15 defined TA as a reflection of the negative consequences of failing. It was manifested in three main aspects: overthinking (5 students), exaggeration of negative thoughts (1 British student), and fear as a driver of

negative thoughts (3 Saudi students). The emotion of fear of negative consequences was present in all groups, but with different framing. Saudi students, being more emotional than British people (Lim 2016), identified fear as clearly affecting their perceptions, while for the British student, it was more the exaggeration of the effect that could trigger anxiety.

6.2.3 Thinking of quitting

The third emergent subtheme related to negative thoughts was "thinking of quitting". Thinking of quitting is defined as students' negative thoughts about withdrawing from the examination, module, programme, or even career, due to TA symptoms. This subtheme was represented among four students from across all the cultural groups, who all had something in common: they also identified experiencing preoccupation with negative consequence and their perception of their own incapability. These negative thoughts were unbearable psychologically and thus they mentioned the urge to quit in different forms, as shown in Table 6.3.

Table 6. 3 Thinking of quitting.

Subtheme	Number	Description
Thinking of quitting	1 local British 1 local Saudi 1 Saudi international 1 French international	Students' negative thoughts about withdrawing from the examination, module, programme, or even career, due to TA symptoms

First, there was the drive to walk out of an examination due to the psychological pressure of feeling incapable of completing it. As noted above, Diyala believed she would not be able to pass the exam and perceived the negative consequences to be greatly due to her family's expectations of her. She recounted:

> *"…it's something make you cannot continue your, your exam and it's you do not feel like confident to continue your exam, and even like we make you like think all the time and worry all the time." (Diyala, Saudi international)*

Second, there was the impulse to discontinue the module itself. When an individual perceives that the opportunity to choose another topic is limited or that not passing a module will affect career progression, he/she may question whether continuing is the right choice and become hesitant and anxious about persevering. Indeed, this hesitancy in itself appeared to be a trigger for TA as in this study, those who questioned the viability of continuing a module had higher levels of TA compared to others. Interestingly, this aspect was not evidenced directly by the international students (as detailed later), but was recounted by two local students, one in SA and one in the UK. The Saudi student,

Ahmad, believed that TA related to a subject would affect his academic achievement and he questioned the viability of continuing:

> *"If I get TA in a particular subject affect* ***my desire to continue*** *(with the subject). I question myself,* ***why am I doing this exam, why am I studying this subject****?" (Ahmad, local Saudi)*

Similar to Ahmad, the British student, Nona, regretted taking a module. She believed it was too complex because it was online. She recounted:

> *"I* ***couldn't remember why I was doing this course****, um, and especially now I look back at it and* ***I can see the light in*** *it. It seems it makes a lot more sense, but the time all I felt* ***was I was never getting out.*** *There was* ***never going to be an end.****" (Nona, local British)*

Third, there were students who discussed potentially quitting the entire degree – either themselves or those they knew. Regardless of nationality or the educational system, there is evidence that negative thoughts concerning one's capacity to do the work and the resulting TA are a significant leading factor influencing the intention to quit. Ahmad, Anna and Diyala demonstrated this intention:

> *"I get to a stage where I regret* ***'why I am studying master'****. I can't study anymore, it is over (and started questioning myself)* ***why am I studying for my Master's*** *in the first place? I am employed and all is well." (Ahmad, local Saudi)*
> *"[They have] not been able to handle the stress of like exams and just like they've dropped out and* ***not finished the whole programme.****" (Anna, French international)*
> *"[With this stress] I* ***will not continue my study of the programme****." (Diyala, Saudi international)*

Finally, there was the potential to quit the career. This was noted by a British student, who reported that TA related to COVID-19 stress was a significant factor in her deciding to stop her academic studies, which would in turn affect her career:

> *"For me, the effect of that anxiety has stopped my academic career so I have decided not to continue and certainly not at the moment while COVID is still happening. It's impacted my career path because I have chosen not to continue again with, without even professional courses. I've, I've chosen to take a short break at least before I decide what to do academically from here." (Nona, local British)*

Intention to quit is an experience of TA that could relate to the examination, the module, the programme, or even the career. The main differentiating factors proposed here are the extent to which the person feels incapable and his/her perception of the requirements. When the perception of incapability is due to the difficulty of the examination and the negative consequences of failing, the natural reaction is to think of not completing it. If the perception of incapability relates to the module, due to the nature of assignments and examinations, and the possible negative consequence is low academic achievement, the natural reaction is to think of quitting the module. In the case of perceiving the whole programme to be too difficult due to the assignment types and the focus on independent and critical thinking, and the negative consequences are loss of time, effort and career, as well as not meeting family and societal expectations, the negative reaction is the intention to quit the programme. Finally, if the perception is of one's career being

blocked due to the inability to meet the programme requirements, the intention may even be higher and lead to quitting the whole career. However, it should be noted that this is only intention to quit, not a behaviour. In other words, people may feel that they are blocked, and they cannot move on, as visualized by being in a dark tunnel or never being able to get out of the situation. This emotion is an aspect of TA.

6.3 Theme 2: Social Withdrawal

Social withdrawal is defined as avoiding interacting with people and preferring to stay alone in isolation. In this research, there were five levels of social withdrawal, starting with self-blame for going out, then the inability to "see beautiful things in going out", being aggressive with people, having friends avoid you, and finally "being alone, away from others' eyes". Table 6.4 summarizes the themes of social withdrawal and will be detailed in the sections that follow.

Table 6. 4 Social Withdrawal

Subtheme	Number	Description
Social withdrawal	9 students	Avoiding people
• **Self-blame for going out**	1 Saudi international 1 Lebanese international 1 French international	Feeling guilty about going out or wasting time with people
• **Inability to see beautiful things**	1 local Saudi 1 local British 1 Saudi international	Depression leading to the inability to enjoy things that used to be enjoyable or see beautiful things when out
• **Being aggressive (easily irritated) to people**	2 local Saudi 1 local British 1 French international	Easily irritated by people or voices and becoming aggressive with others
• **Family and friends avoiding me**	1 Saudi international 1 local British 1 French international	The self-perception that people are avoid the person due to his/her offensive behaviours resulting from anxiety
• **Personal inclination to stay alone in anxious times**	2 local Saudi 2 local British 1 French international	The personal belief that staying away from people is relaxing in anxious times

6.3.1 Self-blame for going out.

The first stage is self-blame for going out. This is defined as the person's internal belief that it is bad to go out and leave one's studies for a time. This belief and lack of compassion towards the self by a taking break was evidenced by Diyala, Yusef and Anna (Eastern international and European international students). For Diyala and Yusef, it came from the perfectionist sense of "not doing enough". Thus, any time away from one's books was considered "wasting time", leading to guilt about going out.

> *"That's I don't study enough, I lose my time, I waste my time actually, for something if I like go out for shopping or coffee or with with have time with my friends. I ask myself why I **waste** my time, why I go for the **shopping**, why I go for a **why I went with my friend**." (Diyala, Saudi international)*

> *"…just focusing on myself and focusing on the work, and even if somebody wants to go out* ***and I would feel guilty if I went out****, I stay." (Yusef, Lebanese international)*
> *"I would go sometimes to try to like to relieve the stress when he built up a lot. But most of the times, like I* ***will feel guilty of going*** *out during exam period. so I wouldn't be very social like I would stay in a lot." (Anna, French international)*

Anna's case was perhaps more difficult than Diyala's or Yusef's because she had a strong desire to go out and she felt "sad" about feeling she should not. This sadness might be another factor increasing her anxiety and making her more depressed, which led to a "vicious cycle":

> *"I would feel kind of sad also because like people will be like let's go out, let's do this and I'm like, no I can't, I have to study and so. it would make me feel kind of sad and but like I stressed out at the same time, I think about the (family) expectations. So it's like a vicious cycle. It's torture I guess honestly." (Anna, French international)*

In brief, self-blame is the first-order effect of feeling anxious of the examination, related to feeling guilty about going out. This feeling of guilt makes the person lack compassion for him/herself. Also, not going out leads to sadness, particularly about not being with friends due to the pressure/anxiety.

6.3.2 Inability to see beauty in one's surroundings

The analysis of the social withdrawal stages, particularly as it relates to depression, offers insightful perspectives on how an individual's perception of beauty and enjoyment is altered by the state of their mental health. The narratives of Diyala, Ahmad, and Sara provide real-life examples that illustrate how depression, fueled by TA, can significantly warp an individual's perception and engagement with the world.

Diyala's experience highlights a profound shift in her ability to appreciate what she previously found beautiful. The depression she experiences is not just a feeling of sadness but a deep-seated inability to find joy in things that were once pleasurable. This indicates a level of anhedonia, a common symptom of depression, where the ability to experience pleasure is lost. In Diyala's case, the natural beauty of a beach, which is typically a source of relaxation and joy, becomes devoid of its charm. Her retreat into isolation, staying in her room, is a physical manifestation of her internal state of withdrawal and disinterest.

> *"I start to get* ***depressed****,* ***I cannot see the beautiful*** *in a beach or in the if I see something before I like it during my* ***anxiety or my or my exams****, I* ***just to stay in home in my room sometimes until I finished.****" (Diyala, Saudi international)*

Similarly, Ahmad's account reveals how his anxiety, particularly around exams, overshadows his ability to enjoy activities he used to find enjoyable. His description of becoming "pessimistic" and being unable to "control" his anxiety even with the prospect of engaging in entertainment, underscores the overpowering nature of TA. This suggests

that anxiety can be so consuming that it not only affects one's immediate state of mind but also significantly impairs their overall outlook on life.

> *"I don't **get the enjoyment** of things you usually would find enjoyable and beloved because I am **busy anxious thinking** about the exam. During my TA, I become pessimistic, I don't **leave the house**. I get to a state where I **can't control my anxiety** and not able to get rid of it by going out for some entertainment." (Ahmad, local Saudi)*

Sara, a local British, mentioned the because of TA students "lost interest" in things they used to enjoy and TA could "swallow you up":

> *"That TA can completely **swallow** you up and you know all the things going on in your life may then contributes and you aren't able then to feel like you can [enjoy things]." (Sara, local British)*

In summary, these personal accounts collectively shed light on the profound ways in which TA and depression can distort perception and desire. The altered view of what is enjoyable or beautiful, the retreat into isolation, and the loss of interest in previously beloved activities are all indicative of the deep psychological impact of this form of anxiety and depression. This analysis underscores the importance of recognizing and addressing the symptoms of TA and depression, as they can profoundly alter an individual's engagement with the world and their overall quality of life.

6.3.3 Being aggressive to people

Being aggressive to people is defined as being irritable with people due to anxiety about the assessment. Four students evidenced this symptom of TA, Saudi local students (Mona and Ahmad), a British student (Nona) and a French student (Anna). Mona and Ahmad believed that they were not able to manage their relations during examination periods and this affected their relationships with their friends and family:

> *"It affects **my dealings** with those around me (friends and family)." (Mona, local Saudi)*
> *"I find this particular subject that is causing me to be anxious (overall) affects me **negatively even at home with the family**." (Ahmad, local Saudi)*

Nona, the British student, had the same symptom of being irritated with people surrounding her. This led to self-blame about her attitude and behaviour with the people around her:

> *"It then makes you **irritable** with people I **wasn't very nice to family and friends**. I **don't think I was very pleasant to be around**." (Nona, local British)*

Lastly, Anna, the French student, became highly irritated at examination time, which was a change from her usual demeanour:

> *"I would be **short** with my housemates like I **wouldn't be like fun** and **easy going**. Even if there was a lot of noise, uhm, like I would get **angry**. I think it's the end that way." (Anna, French international)*

In nutshell, TA made some students become easily irritated with others, which could then make them offensive to them. This offensive behaviour was uncontrollable, and the students blamed themselves for this, which in turn put them in a cycle of pressure and stress.

6.3.4 Friends avoid me

The fourth stage was the perception of losing friends and being avoided. This was painful and could exacerbate the symptoms of anxiety, particularly as it entailed loss of close relations which were a source of security. Self-blame would increase, leading to a strong vicious cycle. This was clear in Diyala's and Anna's narratives:

> *"……. {Negative changes} … in my relationship between my family and my kids, my friends." (Diyala, Saudi international)*
> *"I'm not being able to have like that kind of close relationship." (Anna, French international)*

Nona felt frustrated as she believed that her friends did not like her, and she was losing confidence in herself:

> *"Yes, um, my friends did not like me for a while, and I certainly didn't see them very often. And when I did see them, I don't think I was brilliant company." (Nona, local British)*

In the vignette, Nona reflected on the person's experience, saying that he was unable to "conceal" his anxiety and his irritations in the relationship, which made him keep away from his friends and led to isolation:

> *"I can't imagine him engaging **in anything social at the moment**, when anxiety gets to that level, it's very **difficult to conceal**, and with **him not talking to his friends**, I guess that he's probably **avoiding them**, which then puts him in another situation, um. Where he feels **his friends** probably become **more distant** from him." (Nona, local British)*

In brief, because they became irritated easily and avoided going out with their friends, some students believed that their friends started to avoid them and that they were losing their friends and relations. This made them more stressed as they lost some of the social security of having friends and families close to them in such hard times. This increased their anxiety and made it more difficult to manage.

6.3.5 Being alone

The last symptom here is "being alone", defined as the personal inclination to avoid interacting with people. This symptom was found in the narratives of five students (Mona, Anna, Sara, Ahlam, and Andrew) and was reflected in all groups. This symptom can arise as a natural consequence of not going out (as for Mona) or being irritated with people (as for Anna and Sara), or it can emerge as an individual symptom of TA without former antecedents (as for Ahlam and Andrew).

Mona, a local Saudi student, stated that she preferred not to go out and thus she was alone and isolated from people:

> *"When in that state I don't want to **talk to anyone** nor have a discussion with anyone. I wouldn't want to talk **to anyone nor discuss anything with anyone**." (Mona, local Saudi)*

Anna, who believed that her friends are avoiding her because she was irritable with them, had mixed feelings, wanting to be with her friends and go to the pub but at the same time being stressed. Her anxiety made her isolated and pushed her away from interacting with people:

> *"I'm I **did** try to like go out with friends, interact and I didn't go as much as I would have liked. But I **did** try to go to the bars, the pubs you know… I ended up being lonely." (Anna, French international)*

Sara was similar to Anna as she believed that she was highly irritable with people, so she avoided seeing others and became isolated:

> *"When you are feeling very anxious about tests…. You **withdraw from family and friends**. **seeing people less** because you **don't have time**, **getting easily frustrated** and **annoyed** at **other** people…you're **isolating** from everybody." (Sara, local British)*

The last two cases were Ahlam and Andrew, both of whom remained alone as a mechanism to escape from the world, rather than avoiding irritation with others. The word "escape" indicates a personal inclination to avoid everything in life, which translated into sleeping, using the mobile or laptop for Ahlam, or going to open spaces with no people for Andrew, as represented in figure 6.4.

> *"**I used to escape from people**. I used to go to my room **and close the door** to revise but you would find **me sleeping.** This is **discreet escape**. I don't know how we can control such **escape**. It was similar when I used to escape to the **mobile phone**." (Ahlam, local Saudi)*

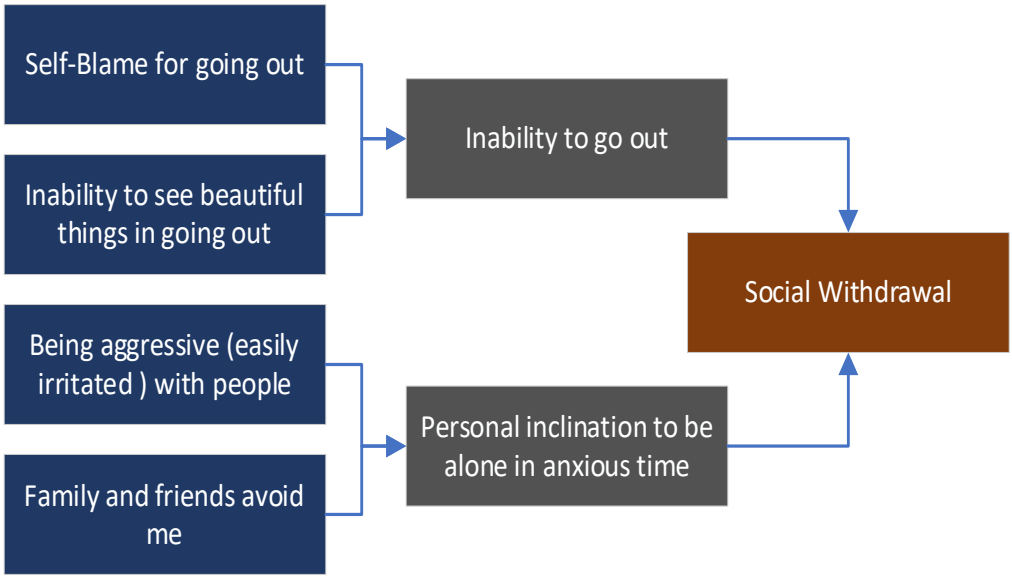
Figure 6. 4 Representation of TA

"[I would go] quite far away from where I lived, just nice to get away from it physically, and it was, some kind of escape, I think, or break at least. I think to have that space to yourself." (Andrew, local British)

6.3.6 Summary of social withdrawal

In summary, social withdrawal is common as nine students out of fifteen reported facing it. This comes from self-blame and a lack of compassion for the self in terms of taking a break and going out with friends, as well as becoming easily irritated and putting relationships at risk. This makes the person feel that he/she is not worthy of being loved or cared for and hence the perception that "friends avoid me". Due to these factors, the person may wish to escape from a battle he/she believes will be lost because of TA, which in turn exacerbates the anxiety and leads to a vicious cycle of negative thoughts and beliefs that affect wellbeing. This is illustrated in Figure 6.5.

Figure 6. 5 Social withdrawal



6.4 Theme 3: Cognitive impairment associated with TA

Cognitive impairment caused by TA is a temporary difficulty with cognitive functions, including trouble remembering, learning new things, concentrating, or making decisions, which can affect examination performance and everyday life. In this research, cognitive impairment was related to the capacity to take decisions. The symptoms of cognitive impairment associated with TA were hesitation (1 participant), a sense of blurring (1 participant), confusion (3 participants), disordered thinking (1 participant), and forgetfulness (2 participants). Table 6.5 summarizes the themes of cognitive impairment and will be detailed in the sections that follow.

Table 6. 5 Cognitive impairment

Theme 3	Number	Description
Cognitive impairment	4 students	Temporary difficulty with cognitive functions, including trouble remembering, learning new things, concentrating, or making decisions, which can affect examination performance and everyday life
• **Hesitation**	1 local Saudi	Inability to take decisions, either because of the fear of the outcomes or because of a lack of clarity in direction
• **Sense of blurring**	1 local British	Incapacity to have a clear vision concerning the examinations and the purpose of being in the programme
• **Confusion**	1 Chinese international 1 French international 1 local Saudi	Loss of focus due to the test requirements
• **Disordered thinking**	1 French international	Inability to organize thoughts
• **Forgetfulness**	1 French international 1 local Saudi	Disordered thinking and lack of focus affects the person's ability to remember important information

The first cognitive symptom of TA is being hesitant. Hesitation is defined as the inability to take decisions, either because of the fear of the outcomes or because of a lack of clarity in direction. Khalid, a local Saudi student, was unable to take decisions in an examination because of his preoccupation with negative thoughts about the consequences of the examination. Instead of keeping to his initial correct selection of answers, he kept amending them:

> *"Feeling fear (of negative consequences) made me* ***switch the answers round. When I review the answers, I would have some doubt, so I change the answer and choose the wrong one****." (Khalid, local Saudi)*

The second cognitive symptom of TA is a sense of blurring. This is defined based on the quotation in Figure 6.6 as the person's incapacity to have a clear vision concerning the assessment. This experience was narrated by Nona, a local British student, through her picture reflecting her experiences of TA.

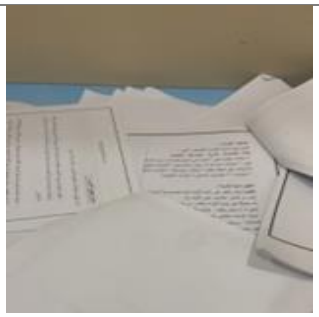
Figure 6. 6 Representation of TA Experiences

"I feel that although you can't see me on that photograph properly, that is how I felt at the time. I felt like I was under so much pressure and so much stress that I actually was just a blur I was just, something that I'm not normally." (Nona, local British)

The third aspect, being confused, was noted by Kelly, Anna, and Khalid. The loss of focus due to anxiety and also being overwhelmed due to the inability to organize data and knowledge, led them to have a fear of failing:

> *"…that kind of panic also stopped me to focus on the thing and writing... I just I couldn't focus on anything." (Kelly, Chinese international)*
> *"…you feel tired and you're* ***unable to focus****, and when you're* ***unable to focus*** *and* ***you feel so tired****, [you] felt* ***more stressed*** *out." (Anna, French international)*

Figure 6. 7 Representation of TA experiences



"I see confusion due to information overload. I think it is the fear of lack of information." (Khalid, local Saudi)

Being disordered was visualized by Anna, a French student. During her study, her mind would become disordered, and she would not be able to organize her thoughts. She visualized this by having a picture of her home with clothes everywhere and she reflected that her mind looked like that.

Figure 6. 8 Representation of TA experiences

"So everything is like disordered, it's just like I chose this photo..." (Anna, French international)

The fifth aspect of cognitive impairment due to TA was forgetfulness. This was noted by two students: Khalid (local Saudi) and Anna (French international). For them, it seemed to be a major factor as they referred to it when reflecting on the person in the vignette and also with reference to themselves. They believed that stress causes the person to forget what has been learned and this then increases the stress as a vicious cycle, leading to failure:

> *"...he's so stressed out that he forgets what he's learned, but then he's stressed out because he **forgot what he's learning.** So, it's just like one thing leading another, **chain reaction**. I think that would just lead him **straight to failure.**" (Anna, French international)*
> *"If the person has anxiety, he **will forget** most of the information for sure. he would be restless and **lose his concentration**." (Khalid, local Saudi)*

To sum up, cognitive impairment is a symptom of TA that is manifested as hesitation, a sense of blurring, disordered thinking, and forgetfulness. For some students, such cognitive impairment influences the ability to study and retain learning. Their perception of their inability to recall what they have learned exacerbates TA symptoms as they feel that they will fail.

6.5 Theme 4: Sleep disorder

Sleep disorder is the inability to sleep a sufficient number of hours due to anxiety. Disordered sleep was experienced widely and perceived by the Saudi and international

students of both genders. Six students (none of them British) reported sleeping issues, exemplified in the following quotations:

> *"Oh yeah, yeah, it's, it's definitely affect my sleep, every time before the exams I, I couldn't sleep very well and I wake up very early in the morning." (Kelly, Chinese international)*
> *"…having disturbed sleep… All of that affects me. When I am anxious, I don't like going out, my sleep gets disturbed." (Ahmad, local Saudi)*

The key driver leadings to lack of sleep for all students was overthinking, which made them restless, tired and unable to focus. Examples were Khalid (local Saudi) and Diyala (Saudi international), who had strong negative thoughts of the consequences of failing and also demonstrated cognitive issues, such as a lack of focus, forgetfulness, as well as Abdullah (local Saudi) and Majid (Saudi international):

> *"You sleep to rest, so if you are restless, you cannot sleep. It is impossible to sleep if you are thinking about something like a specific result, a subject or a certain test. I know some people who **cannot sleep at all during their exam** periods due to stress and anxiety. I remember one of my friends **did not sleep for three days** because of TA." (Khalid, local Saudi)*
> *"…before the exam, I cannot sleep at night, I feel just I just had dreams bad dreams, also I **dreams with the, with the questions**, and sometimes I just wake up middle of the night, open my notebook." (Diyala, Saudi international)*
> *"…all of (the TA symptoms) disappear as soon as I enter the exam room except for **the lack of sleep**. I must finish the exam then go to **sleep**. It is because overthinking, or mind stress." (Abdullah, local Saudi)*
> *"I go to the exam without any **sleeping**. I don't know why, but it's, it's stressful to sleep (laugh). Less sleep, A lot of caffeine." (Majid, Saudi international)*

To sum up, the main drivers for this aspect of TA were overthinking and a sense of being overwhelmed, which in turn reduced the students' cognitive capacity and influenced their sleep, resulting in fatigue and restlessness. It is worth noting that almost all Saudi students faced this issue but none of the British students expressed it. This could in part be due to Saudis being used to staying up late and getting up late due to the extremely hot weather in the morning in Saudi Arabia.

6.6 Theme 5: Physical symptoms associated with TA

The physical symptoms of TA are diverse and individual. Physical responses were reported by 12 participants and were identified in all groups. The first physical symptom concerned ear issues, including ear pain and ringing, and breathing issues, as reported by Diyala:

> *"Sometimes I feel sound comes from my ears … and pain in my ears (…) I have like asthma, but this is just during my exam, not, not my, not my like our courses or like assignments, this is during the exam." (Diyala, Saudi international)*

The second physical group of symptoms comprised gastrointestinal problems, including eating disorders, for example avoiding eating (Diyala, Anna, Ahmad, and Majid) or stomach pain (Kelly, Sara, Mona, and Majid):

> *"I **cannot even eat**, I don't feel that I, I want to eat before the exam." (Diyala, Saudi international)*

> *"It may be (a type of) panic or stomach pain especially when exam time gets closer." (Mona, local Saudi)*
> *"So before an exam I would have like **a stomach ache** I could, I would **not be able to eat**, hm, I would feel needing to go to the bathroom. But yes, I and this is something I've never been able to like stop." (Anna, French international)*

The third group of symptoms consisted of general bodily issues. These included feeling warm or feverish (Kelly and Diyala), a pounding heart (Anna and Sara), and sweating (Nona, Sara and Aliyah), feeling dizzy (Ahlam), and finally a pale pallor (Diyala):

> *"I feel I feel that I'm warm like **a fever** (…) and all my friends told me that your **face is change to to yellow**. Yeah, that's it." (Diyala, Saudi international)*
> *"…something **when your heart starts feeling of worry** and in your **heart just** starts **pounding really hard** and your **hands start sweating** and you feel your **throat is dry**." (Aliyah, Pakistani international)*
> *"I felt I was **sweating**. I felt really negative." (Nona, local British)*
> *"I used to go absent from many exams or get to the **exam and feel dizzy**. That is the negative effects of TA." (Ahlam, local Saudi)*

To sum up, the noted physical symptoms are ear issues including ear pain and ringing, breathing issues including difficulty breathing, asthma-like symptoms, gastrointestinal including eating disorders, stomach-ache and vomiting, and general vascular symptoms including pale pallor, dizziness, sweating, pounding heart. All the physical symptoms are existed in all groups and presented in appendix D.1.

6.7 Summary

The aim of this chapter was to address the first research objective which focused on experiences of TA among postgraduate students in the UK and SA. The main aspects were negative thoughts, social withdrawal, cognitive impairment, sleep disorder, and physical symptoms. For the physical symptoms, the groups were relatively similar reporting ear and breathing problems, gastric issues, and general bodily symptoms.

Negative thoughts are thoughts of being incapable, preoccupation with the negative consequences of failing and thinking of quitting. The international students and local students differed in their experience of thoughts of being incapable. Local students have some scope to quit the programme as the loss will be bearable, while for international students there are strong family expectations and significant financial costs associated with the programme. The lack of opportunity to quit can lead to international students experiencing burnout.

Social withdrawal comprises aspects: self-blame for going out, inability to see beauty in one's surroundings, being aggressive to people, friends avoiding the person, and being alone. This is evidenced in all groups, but with an overrepresentation among women. Cognitive impairment symptoms include hesitation, forgetfulness, a sense of blurring,

confusion, and disordered thinking. Sleep disorder symptoms are associated with overthinking and feeling overwhelmed and are evidenced mainly in SA not in the UK.

Chapter 7. Perceived Factors affecting TA.

7.1 Introduction

The aim of this chapter is to define and investigate the factors influencing TA based on the interviews with the four groups of students: local Saudi students, local British students, and Eastern and European international students in the UK. The findings are presented according to four main themes: the macrosystem and microsystem factors (section 7.2), institutional practices (section 7.3), the assessment platform (online/offline) (section 7.4), and the nature of the test (section 7.5).

7.2 Theme 1: The Macrosystem and Microsysyem

This theme operationalized the student environment as social expectations and requirements, categorized as career expectations and family expectations. The subthemes are summarized in Table 7.1 and detailed in the following sections.

Table 7. 1 Macrosystem and Microsystem factors

Subtheme	Number	Description
Career expectations	2 local British 4 local Saudi 1 Saudi international	It is very common for the Saudi job market to take marks into consideration for hiring or promotion. This puts pressure on the Saudi local and international students. British also need to pass professional qualifications to climb the career ladder, which puts pressure on them to succeed.
• **Affecting the direction of career (selection of career)**	3 local Saudi 1 local British	The threat of being unable to pick the desired school or university due to failing qualifying tests.
• **Affecting career stability**	1 local Saudi 2 Saudi international	The threat of being unable to remain in one's profession.
• **Affecting career progression**	1 local Saudi 1 local British	The threat of being unable to progress in the career.
Family expectations	8 students	Students from collectivist and competitive cultures experiencing psychological pressure from family to get "A" grades, as the results represent a source of pride in comparisons between families.
• **Family pride; not letting them down**	1 Lebanese international 1 local Saudi 1 Chinese international 1 Saudi international	The student perceives that he/she is a source of pride or shame for the family based on examination results.
• **Straight "A" expectations**	3 local Saudi	Family expects only "A" grades due to competition between families. (Results are a source of pride).
• **Family comparisons**	1 Chinese international Local Saudi	
• **Peer comparisons**	1 local Saudi 1 Chinese international	Friends make comparisons based on results, which could lead to bullying if the student falls far below others.

• **Social withdrawal**	2 local Saudi	Due to comparisons, students avoid social gatherings so as not to be asked about their results.

7.2.1 Career Expectations

Career expectations in this research are defined as the importance of the certificate/degree for the student's career. The perception of the importance of the certificate/degree is evidenced as a factor inducing TA in all contexts. As one student put it:

> *"The more you **emphasize on the importance of the exam** the more you give it your full **effort**. There is no doubt that you should give your exams full effort but if you end up giving it more effort than its worth then you would suffer some sort of **anxiety**. Anything that exceeds its limits harms you." (Ahmad, local Saudi)*

TA connected to the career is categorized as career selection, career stability, and career progression. The perception of the threat to any of them is a trigger for TA. The rationale is because the career represents emotional and financial safety and threats to it are a threat to personal security, which is one source of anxiety. The career selection triggers of TA include the fact that some examinations are high stakes (important) by nature because they determine the future of students. These include GCSEs and aptitude tests for gaining acceptance to a university and PhD thesis results for working as a university lecturer (changing from a professional to academic career). The inflated negative perceptions of the consequences of failure are a serious trigger of anxiety:

> *"…important exam is something that make up. I don't know that that that defines your grade sort of things. So, for me my dissertation, like GCSE, is an important exam. Something that maybe is how do I put it wildly widely taken and can then determine your future." (Sara, local British)*
> *"It is only natural that she would be anxious because the General Aptitude Test determines if the university is going to accept her or not." (Ahlam, local Saudi)*
> *"…the results of such tests determine your future job." (Mona, local Saudi)*

International students may experience greater anxiety as they are abroad to achieve "one aim", which is getting a certificate to find a job:

> *"About the fear of failure she came here (in the UK) for **one aim** to graduate, and have her certificate from here, and this is like more responsible around her affect her." (Diyala, Saudi international)*

The second is career stability. Anxiety arises due to a perception of a threat to one's security posed by an examination that carries risks. In the Saudi context, some jobs, such as academic posts, are initially filled without the candidate having a postgraduate qualification but are conditioned on having a Master's and PhD within a number of years.

> *"If Grade Point Average is not good, then maybe affecting the job security." (Khalid, local Saudi)*
> *"…it's required to get a master for your job, as **being in academic jobs**. It's required to get master then PhD, so it's put more pressure on you as well." (Majid, Saudi international)*

The third aspect is career progression. Again, a threat to this triggers TA symptoms. In many organizations, particularly in the public sector, promotion is conditioned on having a Master's degree. Thus, students pursue their Master's studies to gain promotion. For instance, for Ahmad and Nona, local students in Saudi and the UK, their fears were connected to their perception of the importance of the examination for their career progression and opportunity to be promoted in their workplace. The case is perhaps more complex in the Saudi context as there is a requirement to attain a good "mark", not just to pass, as is the case in the UK.

> *"I am scared of such a subject because it plays a great role in my career progression. It means I must pass it and* ***achieve a mark*** *in it. I must achieve a high grade in it. I feel my heart beats faster while sitting the important exams." (Ahmad, local Saudi)*
> *"…it's impacted my career path because I have chosen not to continue again with without even professional courses." (Nona, local British)*

To sum up, the perception of the importance of the certificate is demarcated in three aspects. First, the certificates will influence the direction of the career (i.e. career selection), career stability (i.e. retention), career progression (i.e. climbing the career ladder). This is more significant for Saudi students as job requirements include specific (high) marks. For students holding certain jobs in the SA, such as academic posts, they are under considerable pressure as if they do not attain their MSc and PhD within a specific timeframe, their job stability will be affected.

7.2.2 Family expectations

Family expectations are defined as subjective norms imposed by the close circle of relatives on one's behaviour and performance. Evidence in this regard related to three Eastern international students (Yusef, Diyala, and Kelly) and one European international student (Anna), and two local Saudi students (Khalid and Ahlam). Yusef, the Lebanese (Eastern) student, expressed his motivation and source of TA as the family, making his family proud of him and not disappointing them:

> *"I wanted to* ***do my dad proud*** *and want to do my mum proud, I wanna do my* ***uncles proud****, I wanna do my my friends proud back at home and I I wouldn't wanna like if I didn't do well, I feel* ***so worried like I feel*** *like* ***I'm I disappointed them in a way****." (Yusef, Lebanese international)*

The same was the case for Diyala and Kelly, Saudi and Chinese students in the UK. They suffered from TA because they believed that they had to meet their families' expectations constantly, before and during the examination period:

> *"Keep remembering that all my* ***family's just waiting for me, and*** *they they like have* ***high expectation*** *that I* ***will graduate with excellent grade****, all the time make me* ***like anxiety*** *and* ***to reach what my family want or what the other want from me****."* (Diyala, Saudi international)
> *"My family probably like me, would think that I am supposed* ***to have a good mark*** *in the exam, I am* ***supposed to graduate*** *from college and find a good job." (Kelly, Chinese international)*

In this context, family expectations put psychological pressure on the students to get "straight As" regardless of their "abilities". Hence, negative thoughts occupy the students, leading to TA, especially if they are accompanied by the perception of "inability", as noted by Khalid:

> *"The family **have these expectations that you must get straight A's**, regardless of **your abilities** and the other factors that you come across. For that, you will be under **a lot of pressure**, or you will feel anxious thinking about what you have to achieve or how society will view you. You will try your best, but this could have **a negative effect**, and it may affect your **academic achievement**." (Khalid, local Saudi)*

This sub-theme was evidenced not only among Eastern students but also among European students. Anna used the word "traumatizing" as a depiction of her family's role in her TA due to the push to get good marks:

> *"...the reaction from my family was **traumatizing**, so I think that continued as an adult. I think it's that like **the expectations of the family** and like the **reaction** I got when **I didn't do well**, that stress from the very beginning." (Anna, French international)*

Similar evidence was also clear among the British students: Nona, Sara, and Andrew. Nona and Sara, for instance, used the vignette to depict their thoughts about the role of parents in the person's distress:

> *"...you know **his parents**, expect him to pass and pass successfully the first time, um, and that I believe does add another pressure on top of the existing workload. And because you are then **performing to meet somebody else's expectations**." (Nona, local British)*
> *"...for yourself being **worried** about **succeeding** for other **people (parents)**, tip you over the edge and it makes you **extremely anxious**, and it is unhealthy and it's not helpful." (Sara, local British)*

The UK and Chinese contexts differ, as noted by Sara, who knew Chinese families. Comparing her family to her friends' families, she believed that the Chinese families put a great deal of pressure on their daughters:

> *"I notice the most about me compared to **my friend who had parents who Chinese**, and then came over **was that A star,** the best was the only possible, there will be some disappointment, but it wouldn't be the end of the world." (Sara, local British)*

Thus, although the substance of this sub-theme (i.e. family expectations) did affect Western students, it seemed that it was not as strong as demonstrated among the Eastern students. Andrew did not consider his family had an effect on him; like Sara, he saw others from different cultures struggling with family expectations:

> *"Um, it doesn't say too much about that, but I know **that's not something I've ever had**. I've been fortunate in the fact that my parents' kind of let me do. They **don't place too much** expectation, but definitely I can. I've been able to see that in other people I've worked with **that there is a culture of you have to do well** and I can see that that would contribute to **TA**." (Andrew, local British)*

Another element in the collectivist cultural contexts that could exacerbate the effects of family expectations on the students' TA was family comparisons. Family comparison in this research is the process of comparing, shaming and honouring families based on the students' examination results. In collectivist cultural contexts, success in the examination

does not redound only to the individual but rather the whole family (Peleg-Popko et al., 2003).

> *"It is only natural to be anxious when **you have parents** who make you feel that they want you to be **number one** (among other families) and **perfect** (while perfection is only to Allah)." (Ahlam, local Saudi)*

Similarly, Kelly (the Chinese student) reflected that for the person in the vignette, members of her social circle were putting great pressure on her because she was constantly being compared with those in other families:

> *"Because in this contact, if her social circle (the person in vignette) have high expectation of success, so probably, family **comparisons keep her down**." (Kelly, Chinese international)*

The issue is not only with families, but also with peers in this type of culture. Peer comparisons are defined as benchmarking oneself against others in the same class of comparison (i.e. class, grade, and school). Evidence was provided by Kelly and Ahmad:

> *"Comparisons among friends them keep them down." (Kelly, Chinese international)*
> *"I also think that competition between the students causes anxiety for the students. For example, if I am always in the top position and so does another student colleague of mine then there would be strong competition between us which **causes anxiety**." (Ahmad, local Saudi)*

Should one not meet the requirements and be aligned with the societal values or norms, he/she was deemed to have failed. As Ahmad, a Saudi male student, argued, once a student got low marks, his friends would bully him and label him a "failure". This behaviour increases TA and induces feelings of shame:

> *"I recall an incident with my students when I entered into the classroom unexpectedly and I heard one of the students **say to another one "You are a failure".** To be honest, he wasn't very successful in his studies. Therefore, this must implant anxiety into him. So **bullying** has great effects including being anxious." (Ahmad, local Saudi)*

In a collectivist culture, unlike individualist cultures, failures and successes are shared among their families and communities (Al-Romahe, 2018). Such questions can represent a psychological challenge for students as they expect people to ask them about their performance in the examination; if they get poor results, this could be a source of a shame. Both Khali and Ahlam, local Saudi students, reported this and said that they would isolate so as not to be questioned. Ahlam said she avoided people because she was anticipating questions and would feel embarrassed if she did not do well in the examination:

> *"...such as psychological pressures from **society's expectations**. There are people who **have high expectations** of you while others belittle this effort. For example, when I had my exams, I didn't want to go out nor attend this or **that social** gathering but there were some people **who belittled me...** This used to affect me mentally **because I didn't know whether to go with them or stay at home and ignore them ...** The presence of my parents, family and society was my **biggest cause of anxiety**. How am I **going to appear**?" (Ahlam, local Saudi)*

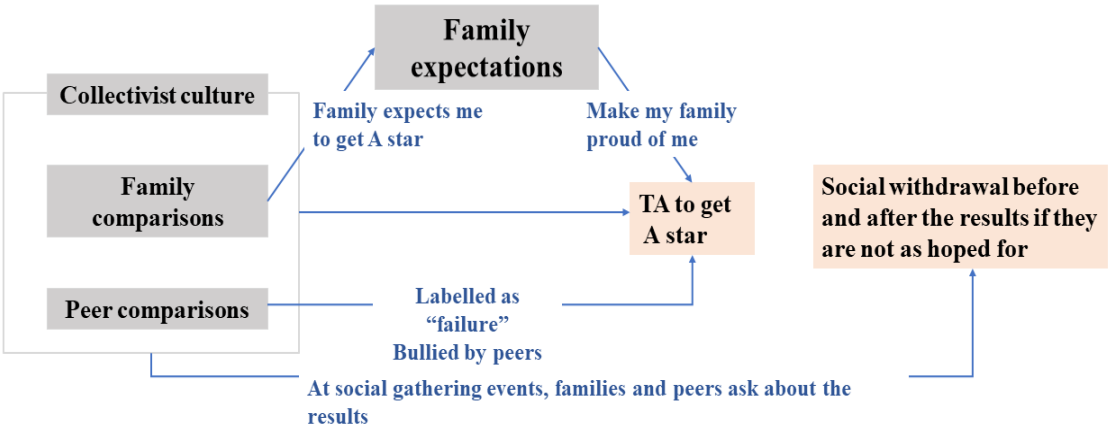
Ahlam and Ahmad (local Saudi students), when asked about the possible reasons for being anxious in the examination, responded that they are "Ideal ones and they will try to get the entire 100%". This desire to attain top marks and the perception that they "*may*

not achieve the high grade of A+", reflecting family pressure, led to sustained effects of anxiety (i.e. before and after the examination):

> "…***always like to be top and in the first (position)**, being **anxious fearing the loss of the top position**. There is a continuous the fear that I may not achieve the **high grade of A+ before and after the exam**." (Ahmad, local Saudi)*
> *"…reason for the anxiety was that we had to **achieve a high grade** in the research thesis. It was not easy **to just achieve a low grade**." (Ahlam, local Saudi)*
> *"…because I really **want to have a first class for my degree**. I feel very stressed because I don't know if I could achieve that kind of marks actually." (Kelly, Chinese international)*

In brief, as shown in figure 7.1, students from highly collectivist cultures suffer from the comparisons made between families and students, measured by the success of individuals in school and university examinations and grades as reflections of their achievements and success. In addition, axial themes showed that Ahlam and Ahmed avoided social gatherings for fear of comparisons with others during assessment periods.

Figure 7. 1 Macrosystem and Microsystem factors



7.3 Theme 2: Institutional practices triggering TA (Exosystem)

Institutional factors arise due to university policies and regulations regarding the educational process in general and assessment portfolios. The factors here comprise the cost of education, assessment strategy, and integrating numeric modules in literacy-based programmes or vice versa.

7.3.1 Cost of education

The first sub-theme is the cost of education, defined as the level of financial expenditure needed to attain the academic qualification, including the tuition fees, housing, and daily expenses (see Table 7.2). This theme was not evidenced in the local Saudi group, likely because most post-graduate programmes in SA are free. The international students were the most anxious because they were paying the most, relative to the local British students. The international students commented as follows:

> *"**Financial pressures**, you know, knowing if you're if you're funding yourself, your **parents**, or you saved all that money could be one another. That could be another **family financial**." (Aliyah, Pakistani international)*
> *"...my parents just **spent a lot of money** on the tuition fee and everything and I just don't want to **let them down even** though they don't really expect everything from me. But I just **don't want to let them down**." (Kelly, Chinese international)*
> *"...it's **very expensive in the UK**, so I had to **take a loan** to live in UK and to study, and and it's **not like in France, it's free**. Here, I had **to pay** for my studies, the the price of living, the cost of living. **Paying for my studies** and **expecting to succeed** because I paid for my studies, **couldn't fail**, **that's how I felt**." (Anna, French international)*

Although the Eastern and European international students were both anxious because they were paying for their education, the triggers of anxiety differed. For Kelly and Aliyah (Pakistani and Chinese), they perceived that they would hurt their "parents" and "family" and "let them down" if they did not pass because they had paid the tuition fees, which were a significant cost to them. This pressure resulted in distress and the need "to perform well". Anna, the French student, contrasted the case in the UK with France, as in France education free and she had a bursary, while in the UK she had to pay for herself. The trigger of anxiety for Anna was not only regret about possibly failing and losing her money but also her preoccupation with negative thoughts that her career would collapse and she would end up working for McDonald's if she did not pass:

> *"I'm not going to waste my time and **the money** that has been invested in this. What **will I do for a job**? Like **McDonald's**? All these thoughts like come **through** and **it's terrible**" (Anna, French international)*

In the UK, there is no similar pressure. Rather, Andrew (a local British student) perceived that international students struggled and were anxious because of the amount they paid for their education:

> *"...international students pay a lot of the fees. I think there's kind of **an added pressure** there as well to make the most of their education and to do well because their parents are paying additional amounts." (Andrew, local British)*

To sum up, the cost of education induced negative thoughts and a preoccupation with the negative consequences of failing, as this would have a significant impact on the family (shame) shame and/or detriment to their career. Both the Eastern and European international students were anxious due to the amount they paid for the degree. The Eastern international students, likely due to their collectivist culture, faced considerable TA as they were being funded by their parents who had high expectations of them. European international students also felt anxious due to the amount paid, but because they needed a return on their investment having funded themselves. Thus, their trigger was mainly career progression rather than family expectations. This theme is summarized in Table 7.2.

Table 7. 2 Cost of education.

Sub-theme	Number	Description
Cost of education	5 students	The cost of education puts pressure on international students; local students in both countries typically do not pay for educational provision, or the costs are considerably lower.
• **Self-financed** (family money and personal loans)	1 Chinese international 1 Pakistani international 1 French international	The family pays and they are expected to get excellent results. They should not let them down. Funding through a personal loan has to be repaid and it is expected to have a return on this investment. Students cannot afford to fail.

7.3.2 Assessment Strategy

Two aspects of the assessment strategy were perceived by students to trigger TA: new (unfamiliar) assessment types and assessment deadlines.

Newness of the assessment type

The newness of the assessment is defined as the level of difference of the assessment type compared to assessment types familiar to the students. The novelty of the assessment type could lead to students perceiving themselves as being less capable of attaining the highest score. This was evidenced by four students (Ahmad, Nona, Ahlam, and Yusef). There was no indication that the cultural groups differed in this respect: the existence of new assessment types triggered TA for those seeking perfection (Ahmad) and control over the ability to perform and the outcome (Nona and Yusef), and for those with a lack of self-efficacy to deal with the assessment requirements (Ahlam). The findings are summarized in Table 7.3.

Table 7. 3 Newness of the assessment

Sub-theme	Number	Description
Newness of the assessment type	4 students	Novelty of the assessment type compared to familiar assessment types affects TA
• **Cannot get full marks** • **Cannot control the environment**	1 local Saudi 1 local British 1 Lebanese international 1 local Saudi	The assessment type represents a challenge that could limit the ability to get full marks The sense of the situation being out of control makes students nervous

The first example was Ahmad (a local Saudi student). For him, as a perfectionist and seeking full marks, reflecting on the person in the vignette, he through the new type of assessment was complex and it would be more difficult to achieve the highest grade than in the conventional assessment types (e.g. MCQ):

> *"It is because of **the change in the pattern** (of the sitting of the exam). People are **used to a particular way of doing** things but then something else has been imposed on them which*

> *may affect them. If a person **is aiming for a grade**, then no doubt they want to **follow known routes**." (Ahmad, local Saudi)*

For someone seeking to control the environment and outcomes, new assessment types activate TA. Nona (a local British student) referred to the new assessment format as a "massive" source of anxiety for the person in the vignette:

> *"…because of how he perceives the assessment to be, because **he hasn't done it before like this**… **He's a massive stress.** Adapting to that change it is is it has been very difficult. You **know yourself the last year**, it's been very **difficult to change things**. Because he doesn't **know what to expect**. He doesn't know how the **situation is going to unfold**. that itself not being in **control does produce a lot** of anxiety." (Nona, local British)*

Yusef admired the new assessment types in the UK and their novelty. He also believed that these assessments (i.e. open book) were good because they show "understanding and comprehension of the material" compared to the traditional methods (i.e. examinations based on memorization). However, the newness of the assessment made him think the students felt "out of the place", leading to TA:

> *"…it [the new assessment] will cause the student to **feel a bit out of place** and could hinder performance leading to TA**.** because this anxiety at times **tempers** with how much you believe you **should get** and how much you actually **understand the new** assessment type." (Yusef, Lebanese international)*

The participants perceived novel assessments to be stressful and this could trigger their TA, even if they recognized the value of the assessments. Similar to Yusef, Ahlam (a local Saudi student), felt stressed although she liked the new assessment types requiring critical thinking and independent work. She felt incapable because of the newness of the assessment type and experienced a lot of fear and stress although she argued it was "easy":

> *"I **would submit something better than that one**. I exerted so much effort on **that research project** but because it was **my first ever research**, something **new** for me, I had a **lot of fears** and **stress**. It could be **lack of self-confidence** because I **have never carried** out scientific research before." (Ahlam, local Saudi)*

This affected her perceptions and resulted in cognitive impairment symptoms, manifested as being hesitant and "rubbing out every word ten times" (as explained in section 6.4 Cognitive impairment). This issue was triggered by her perception of being incapable of dealing with the assignment requirements, expressed as lack of confidence:

> *"I was **anxious** because when you do write a word, you are **not sure** about it. I have never conducted research before. I was writing **and rubbing out every word ten times** and because **I wasn't confident**." (Ahlam, local Saudi)*

To sum up, the extent of change in the assessment types activated TA symptoms because the students had to deal with both their newness and perceived vagueness. The newness of the assessment types triggered perceptions of being incapable of dealing with the requirements and getting the necessary scores, which could lead to cognitive symptoms

of anxiety, such as being hesitant. Interestingly, Ahlam and Yusef liked the new assessments although they they led to TA, which suggests that positive attitudes towards an assessment type and anxiety can exist at the same time.

Assessment deadlines

The UK system is characterized by being strict in terms of deadlines and there are many in a short period of time since a typical MSc programme is for a duration of one year. These two features of the postgraduate assessment system in the UK can create anxiety for international students who are used to a more lenient submission system. The theme of strict deadlines emerged in this study as the perception of the need to change the deadline but the system not allowing it, as summarized in table 7.4.

Table 7. 4 Assessment deadlines

Sub-theme	Number	Description
Assessment deadline	5 students	A challenge facing Eastern students as they used to having few deadlines per semester and there is flexibility in the submission dates.
• **Many deadlines in a short period of time**	2 Saudi international 1 French international	Many assessments are perceived as stressful and place huge pressure on the students' capacity to deal with the requirements, thus triggering anxiety.
• **Strict deadlines**	2 Saudi international 1 Pakistani international	The UK system has strict deadlines, unlike their home country systems, which have flexibility in the submission date.

This theme reflected the international students' sense of a breach of their psychological contract with the school, as appeared clearly in the contrast made between the home country university and the British universities for Diyala, Aliyah, and Yusef (all international students). They classified the British submission system as "A lot of pressure in one word" while other systems are more "comfortable working and studying":

> *"There (in Pakistan) they could give 10 days extra if I need ... Here it is very strict. So, I think there's a lot of pressure in one word." (Aliyah, Pakistani international)*
> *In SA, I just like I don't have the exactly deadline. But here in England we have a time for deadline and day and time." (Diyala, Saudi international)*
> *"Personally, the good thing about that* ***course*** *was that they gave us extensions and that was very suitable because the less* ***emphasis the less an extreme emphasis they have on time you'd see that students, myself included, would perform better.*** *Like I feel more comfortable working and studying." (Yusef, Lebanese international)*

The second element was having many deadlines in a very short period of time. The MSc in the UK is one year, while in Saudi, Pakistan, or France it takes two to three years. When international students come to the UK, they find that the frequency and deadlines of examinations are too much in a very short period of time compared to their home country. Diyala, Majid, and Anna reported on this:

> *"…the master it's a short time, one year, not like Saudi degree three years. We have all the assignments with so many deadlines. And we work as that [stress]." (Diyala, Saudi international)*
> *"…they did the table for the final exams and I had two modules in the same day. Final exams for two modules in the same day, one day. One, uh at 10:00 am. The other one was at 2:00 pm. So it was very very stressful. Weeks before the exam with short deadlines, with many assignment the same time so it was like is anxiety for me." (Majid, Saudi international)*
> *"So my masters experience in the UK was extremely **stressful** and very **tough**. You have to hand in a **lot of written papers** and there's also **one or two exams** in in person, but there's a **lot of essays, dissertations**. Programme i**s so compact** and there's so much in one year would probably **increase exam stress**." (Anna, French international)*

This theme was evidenced widely among the international students in the UK. It is likely that the local British and Saudi students are familiar with their home country systems. Strict deadlines for those familiar with extended and flexible ones are a source of anxiety. Similarly, those used to only a few assessments per semester experience anxiety at being confronted with a large number and may find it difficult to cope.

7.3.3 Integrating and testing STEM modules in social science programmes or vice versa

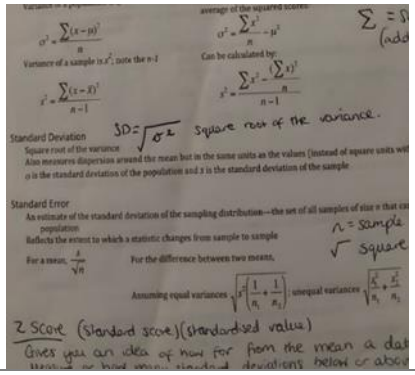
Students in the social sciences and business fields, enrolled in programmes such as management, literature, and philosophy, which have a literature/theory background, tend to operate in interpretive paradigms in which there are multiple definitions of reality, i.e. there is no single truth and no model answer (Koksal, 2011; Trevors et al., 2017). In contrast, those studying in the natural sciences, such as in mathematics, biology, and medicine, operate within an objective paradigmatic perspective, which holds that there is a single version of the truth and there is no room for different interpretations (Koksal, 2011). When a student from one background takes a module from the other, e.g. a philosophy student taking a module in mathematics, it tends to induce TA. This theme was narrated in all groups.

The evidence in this research showed that the social science students felt anxious when faced with mathematical equations or statistics with only one correct answer. Two participants used to there being no right or wrong answer reported that being faced with an absolute represented a challenge and was a source of stress:

> *"It depends on the nature of the subject (TA). If the subject is theoretical, then no. But if the subject is scientific one, then yes, because scientific subjects like statistics, mathematics. [In scientific subjects], I think it would be the fact that the answer is **either right or wrong**. In the theoretical questions, I could still get half of the mark if I forget something. But in the scientific questions, it is just right or wrong, nothing in-between." (Khalid, local Saudi)*
> *"…the theoretical type questions (…), don't have a right or wrong answer. I just have to understand and write at my own comfort. Unlike the statistical problem correct or incorrect answer." (Mona, local Saudi)*

Sara, a British psychology student, who was studying statistics as one module, said she could not “comprehend”. For her, statistics, as hard knowledge, induced “horror” , as shown Figure 7.2

Figure 7. 2 Representation of TA experiences



When I think of statistics, I think I've just a jumble of mess, it's just messy in my head I feel like I can't comprehend, and it makes me feel really anxious. So, I thought this this image is just so much information all in one and that's what I feel about that topic. It feels like too much, it feels like I'm overloaded, and I'm overwhelmed by information… And it still brings horror when I look at it… (Sara, local British)

Equally, Ahlam, a mathematician, and Yusef, an engineer, struggled and felt anxious about theory-based modules, for example a module on epistemological beliefs and relativism. They could not accept the axiology that there could be different versions of the truth in answering a question as they were used to having only one correct answer:

> *“When one memorizes the answer to 1 + 1 it is not the same as asking why is it that 1 + 1 = 2, reasons can be different with no right answer… This is stressful.” (Ahlam, local Saudi)*

> *“…in engineering I apply a formula, I see the answer **is very clear** cut where I made a mistake. In [theory-based modules] I wouldn't really know if my answer **was 100% right or wrong** because we **didn't have a solution manual** to look at the to look at the answers, I wouldn't get a straight answer from the professor if it's right or wrong. Um, **I I wouldn't feel assured**.” (Yusef, Lebanese international)*

Hence, they viewed such modules as being difficult in terms of gaining knowledge, wishing rather to memorize the information without understanding the different arguments or views. As Ahlam put it:

> *“…**just** reading it directly and **memorizing (**…) I would **not understand** fully the theory of the subject by just **memorizing** the characteristics of the theory of education, behaviours and its advantages and disadvantages. This memorization process **creates anxiety** because I only **memorize** on **my tongue** without implementation.” (Ahlam, local Saudi)*

To sum up, the inclination of a person to study a certain programme could indicate his/her capacity to process numerical or literary/theoretical information. This research found that some students were confused when they faced mathematics/statistics modules in literary-based courses. They panicked because they believed that there should be a space for interpretation and discussion, not one single rigid answer. Similarly, students taking engineering and mathematics did not understand the concept of different interpretations or standpoints and tried to memorize the information required as they believed reality

comprised one correct model answer. They were anxious as the concept of no model answer or absolute meant they did not feel they could control the outcomes of the examination. This theme is summarized in table 7.5.

Table 7. 5 Integrating and testing STEM modules in social science programmes or vice versa.

	Universal Reality	**Multiple Realities**
Background	Mathematics and Science	Literature and Education
Expectations in the assessment	A model answer and only one single correct answer	No model analysis and expected to make arguments and express different views
Stressful questions	Critical thinking (not based on a model answer)	Memorizing questions with a model answer
Stressful modules	Theoretical, as different theories give rise of different explanations and no single answer	Mathematics modules based on deterministic equations and formulas
Coping strategy	Memorizing different views but feeling anxious as there is too much to recall in the examination	Tutoring, but not effective as they felt stressed seeing the mathematical equations
Examples	Studying education science to become teachers of mathematics or engineering	Studying statistics as part of a literary/theory-based programme
Representation in study	1 local Saudi 1 Lebanese international	2 local Saudi 1 local British

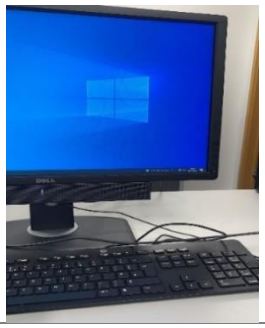
7.4 Theme 3: Assessment platform: Online triggering TA (Mesosystem)

During the COVID-19 pandemic, students had to take examinations online from home. This context of assessment was new to the students, and it triggered TA among four local students in SA and the UK (Nona, Mona, Ahmad, and Khalid) and one Chinese international student (Kelly), but reduced TA for a French international student (Anna) and a Saudi student (Diyala) in the UK.

> *"This is specific to the online type of exam, umm I've never experienced anxiety to that level before. this was new and was totally different. The panicking, the shaking, sweating, the very easily distracted with being online." (Nona, local British)*
> *"…these exams caused my anxiety to get worse more than (if I had) attended university (and sat the exam the exam there)." (Mona, local Saudi)*

Perhaps due to the COVID-19 situation, the most common representation of TA was an image of a laptop or computer for local and international Saudi students (see Figure 7.3).

Figure 7. 3 Representation of experience of TA

	***"…the laptop is associated with exams done remotely so now, when I see it, it reminds me of the exams." (Mona, local Saudi)***		***"Because for me the laptop is the test. It has all the test's content. I use it to study. I ask myself questions while I am in front of this screen." (Abdullah, local Saudi)***
	*"These (pictures) remind you, A lot of exams, the hard work we did and everything, and it was it was not good experience." (Majid, Saudi international)*		*"I like search from this PC but I cannot remember it and yeah this makes me very nervous." (Diyala, Saudi international)*

The following sections highlight the causes of TA related to the online platform. These comprise perceptions of technical issues (i.e. reliability of the technology, perception of inability to deal with the technology) and social-related issues (i.e. perception of inability to get help when needed, sense of isolation from emotional support of colleagues). These are summarized in Table 7.6.

Table 7. 6 Online platform

Theme 4	**Number**	
Online platform	9 students: triggering anxiety 2 students: reducing anxiety	
• **Technical**	3 local Saudi 1 local British	Reliability of the technology and perception of inability to deal with the technology
• **Social**	3 local British 1 Chinese international	Perception of inability to get help when needed (3), feeling isolated from the emotional support of colleagues (3), sense of loneliness (3), too much freedom to focus (2)
• **Reducing anxiety**	1 French international 1 Saudi international	Accommodating their introvert personality in terms of being away from the eyes and presence of others

7.4.1 Technological Issues

Technological issues are factors that contribute to TA because of the nature of taking an assessment online. There are two main issues: the perception of the reliability of the technology and the perception of the inability to use the technology in the assessment. This theme was noted by four local UK and Saudi students.

The perception of the reliability of the technology concerns its dependability for students to undertake the assessments without technical issues. This factor was noted as a source of TA by two local Saudi students (Mona and Ahmad), who were anxious about the stability of the internet connection during the examination and the possibility of having the computer restart, wasting precious time:

> *"An hour was allocated for the exam so if the **internet connection hung up** or it got **cut off** then you would lose the exam and therefore miss it. This caused me so much anxiety." (Mona, local Saudi)*
> *"...**a nightmare** for us **was the device** itself especially because I and many of my colleagues work and live in rural areas and we sat the exam from there. So, we faced problems either with the **internet connection** or the **device**. sometimes there were problems with the device itself such as **switching off suddenly during** (the exam)." (Ahmad, local Saudi)*

The second challenge comprised the students' perceptions of their ability to deal with the computer during the examination and typing while thinking of the answer. This was noted by two local students in the UK and SA:

> *"...not knowing how to use technology, maybe the **troubles using technology**. Now, in online teaching and assessments, we are suffering... it is distressful." (Khalid, local Saudi)*
> *"Knowing... having to remember what I wanted to write and typing at the same time were very difficult, and it's a quite a difficult process to type. It's easier to write it out... it almost felt like the task was made twice as hard." (Nona, local British)*

To sum up, technological issues could arise due to the lack of stability of the connection, which was clearly evidenced in the Saudi context, or due to the person's interaction with technology (i.e. trouble using the technology or ease of use of the laptop keyboard), which was clearly evidenced in the UK and Saudi contexts.

7.4.2 Social issues with online teaching

Social issues relate to socio-environmental changes in the context due to the delivery of assessments online. The emergent sub-themes are the inability to get help when needed, feeling isolated, and feeling lonely. The first challenge concerned the perception of the inability to get help when needed, making the students feel vulnerable to unanticipated events during the assessment. Sara, Nona, and Andrew (local British students) evidenced this trigger of TA when asked about the person in the vignette, responding as follows: feeling unsafe, difficulty getting help when needed, having the perception of not being well-equipped for the examination.

> *"...when you haven't made close connections with your tutors. **You don't feel safe.**, it's more **difficult to ask for support and to get support**. For example, a very minor question about some about the content is **very easy to ask** at the end of a lecture **in perso**n or you know when you're seeing that due to **face to face**." (Sara, local British)*
> *"There isn't the opportunity for open discussion, and there isn't the **time to ask questions**, so you know perhaps that **a lot of his anxiety** around during the assessment is **worrying** as **not equipped well enough**." (Nona, local British)*
> *"Just the fact that you're not there to see them, the lecturers physically, I think affects your **understanding** and **your confidence** in what they're **communicating**." (Andrew, local British)*

The second issue was the sense of isolation and a lack of emotional support that comes from seeing and talking to others physically, feeling they have something shared among them. Isolation came from being alone in one's room, away from other students who had taken the same module and undergone the same learning experience and was participating in the same assessment experience. This could trigger the feeling that the "unknown" might happen and the student might not be informed about it.

The sense of being isolated and apart from others was very clear in the accounts of Andrew and Nona (local British students), and Kelly (a Chinese student in the UK). For Andrew and Nona, the issue was feeling that they were in a vacuum, separated from others and unable to communicate easily. This stressed them and made them anxious as they lacked the sense of support they had when they could see others with them in the same class:

> *"…it's a kind of hands-off approach and we have been **physically isolated** a lot more. And it's much harder to even just **communicate** across **like a laptop**." (Andrew, local British)*
> *"[I] **had more anxiety doing** it online than I have had visiting assessment centres. Because you traditionally you have the **support of people** that feel the same when you go to an assessment, your **peers feel the same**. The other **students feel the same**. You get a little bit of support from that, whereas doing it online you **were just all alone**." (Nona, local British)*

For Kelly, the Chinese student, the case was slightly different. She was anxious because she was alone, and she could not see anybody around her. This triggered her fear of the "unknown":

> *"I am in my own room, I couldn't see anywhere anyone else. I I would just start to **feel the anxiety towards that kind of unknown** … you just you **couldn't see anyone else.** You don't know how they're doing, even though I could imagine that they are doing the same thing, but you just **couldn't see** them… It is very stressful." (Kelly, Chinese international)*

For her, staying at home alone left her overwhelmed with negative thoughts about others. She felt it was as if she was in "prison" as she was isolated from others.

> *"I just don't want to feel overwhelmed in my room for such long time. I don't want my room feel like a prison when doing the exam." (Kelly, Chinese international)*

When Kelly could see others taking the same examination, she felt safer and more emotionally supported by her peers:

> *"…you feel that your friends when you sit there when your teacher say the exam is start, when you finish it, you just hand your paper to the examiner… you feel safe." (Kelly, Chinese international)*

Being alone in the examination period could result in psychological pressure as the students had more freedom than they were used to in traditional examinations. This was the case for Nona and Kelly. In the traditional examination setting, she was used to having clear boundaries and specific permitted actions and behaviours, while in online examinations she felt anxious as nobody would stop them from doing what they wanted; they could make "bad decisions" and become distracted, which triggered anxiety:

> *"…when you're in your room, you are on your own. You have to **control everything** you have to control what time I should use, and should I go **to the toilet now**? Can I actually even **turn on the music** with me? That kind of choices, and I'm really **worried** that **I will make some bad decisions**." (Kelly, Chinese international)*
> *"…[It's] very **difficult to concentrate** doing it online. It's not the same as being with your peers in an assessment centre, it's not the same environment. You have **distractions** at home. I found it a lot harder doing it online." (Nona, local British)*

However, online exams are not always perceived to be triggers of TA. Diyala and Anna (Eastern and European international students) preferred the online examinations because they reduced the TA induce by being with people face to face. They found the online format more accommodating than the pen-and-paper format since their teachers were not observing them:

> *"…teachers around us just watch and waiting for you to finish that make me more like, anxious **I feel more stressed with the paper exam** ... I **prefer online exams.** I don't have more stressed people around me just watching me, remind me every minutes that you have 10 minutes left this is make me more nervous more anxious." (Diyala, Saudi international)*
> *"[Online assessments] **have been easier because** I didn't like **the face to face**, I would think that working **from home would be easier**. I **would prefer having assessments at home**. (Laugh) So yeah." (Anna, French international)*

To synthesize the arguments here, for some students the online teaching and assessment platform was viewed as impeding their ability to get help when needed, made them feel isolated from others' emotional support and alone (leading them to be fearful as they did not know what others were doing), meant they were easily distracted by the surrounding environment in the online examination, and gave them too much freedom, which could be stressful. For those inclined to experience TA, there was a sense of a lack of safety, not being well equipped, and not knowing the people in the class. The latter could give rise to a feeling of lack of familiarity and strangeness, in contrast with face-to-face classes in which students know each other and feel more emotionally safe. However, some, such as Diyala and Anna, preferred the online environment as it allowed them to work alone and avoid people, accommodating their personalities.

It is worth highlighting that the students who suffered from social issues were British and international students in the UK. It could be because in the UK the COVID-19 lockdowns were especially strict and lasted a long time, leading to isolation and loneliness and a need to see others. Alternatively, the lack of evidence of such issues in SA could be attributed to the nature the collectivist culture and students being grouped even in online examinations, unlike in the UK, where students tend to come together as cohorts mainly in formal contexts, such as the classroom.

7.5 Theme 4: Nature of the test (Mesosysystem)

The TA is highly associated with the nature of the exam (Kolagari et al., 2018; Stowell & Bennett, 2010). The nature of the test is defined as the elements constituting the process of evaluating student academic achievement during or at the end of a module. The participants believed that TA was not similar across all modules:

> *"I suffer from TA on about a medium level but in reality, its level differs from one subject to another which is surprising." (Ahmad, local Saudi)*
> *"I mean it depends on the subject. I don't get anxiety with all the subjects." (Mona, local Saudi)*

The nature of the test in this research comprised three dimensions: time factor, interaction-based assessment, and written assessment format.

7.5.1 Time factor

The assessment period is stressful for students (Lotz & Sparfeldt, 2017). The time factor is defined as the period of time the student feels he/she is subject to evaluation by the assessor. Assessments are classified based on the length of time it takes to fulfil the academic requirements: short, timed examinations; a timed examination over 24/48 hours; assessments over longer periods of time (coursework).

Short, timed examinations (less than 4 hours)

Short, timed examinations are considered to be assessments completed within four hours. Most of these assessments are traditional examinations taking around one to two hours. Most students in all groups considered these examinations to be a major source of anxiety. Sara and Nona (local British), Anna (French international), Yusef (Lebanese international), and Abdullah (local Saudi) reported that most of their anxiety was related to timed assessments:

> *"In-class examinations are lot more stressful than writing from home because you have a **certain amount of time**, that is very reduced where you have to answer all of the questions." (Anna, French international)*
> *"[Exams make me the most anxious because] particularly the short time frame is is very negative." (Nona, local British)*
> *"As for the online tests, the biggest challenge to me is the time." (Abdullah, local Saudi)*
> *"…**a timer ticking** made me anxious. I had problems with time." (Mona, local Saudi)*

Yusef and Sara visualized TA as a "clock", as shown in Figure 7.4.

Figure 7. 4 Representations of TA experiences

*"…**it's it's o'clock**. It's time. timed assessments is **definitely the worst for me**. The one thing **I always think in any test, any assessment is how much time do I have**. Am I gonna be able to do it in that amount of time?" (Sara, local British)*

*"I think mainly when I was when I was getting this anxiety when when was I was when I was having exams that were constructed by time... **I think this is the one that influences me the most**, and it's time whenever you're constricted with time." (Yusef, Lebanese international)*

Aspects of TA are delineated as confusion/distraction, the perception of unfairness, and stress for international students in terms of translating the scripts. The first aspect concerning short, timed assessments was confusion/distraction due to the students feeling they needing to keep monitoring the time available. This theme was evidenced by Yusef (Lebanese international), Mona (local Saudi), and Sara and Andrew (local British). They kept an eye on the time and would ask how much was remaining to complete the examination, which put them under psychological pressure, leading to them wasting their energy and being distracted, hence triggering TA:

> *"I'm **always looking at my watch** or I'm always **asking about time**. It sometimes takes part of your energy because you're **spending so much thinking just about**, I'm not about the actual exam material." (Yusef, Lebanese international)*
> *"[About the time] I **would get confused**... not knowing if there **is going to be enough time to complete** the exam or not." (Mona, local Saudi)*
> *"...**thinking about that** [the time left to complete the exam] is distressful to me." (Andrew, local British)*
> *"...always thinking... how much time do I have?" (Sara, local British)*

The second aspect of TA with regard to short, timed assessments was the perception of unfairness, evidenced by Yusef (could do more), Andrew and Sara (unfair representation of work), and Aliyah (situational conditions could affect performance). Each one had his/her views justifying their arguments. Yusef, Sara, and Andrew believed that such assessments were an "unfair representation of the work" because they could do better in a calm environment (e.g. being more creative, recalling information, and not providing incorrect answers due to rushing):

> *"...you feel like you're not well assessed because you didn't **spend the right amount of final something** (...). It is **limiting my creativity** as I know I **have limited time**." (Yusef, Lebanese international)*
> *"**The pressure is already really high** and you are **more likely to forget things** that you would've known in a **calmer environment**. It isn't **a true depiction of your ability**." (Sara, local British)*
> *"It's an **unfair representation of how much work** I've actually put in because I **get a bit anxious** and then I **get things wrong**." (Andrew, local British)*

Aliyah and Andrew believed short, timed assessments should not be used to judge a person's ability because many factors could intervene to influence performance:

> *"[I]* ***don't feel that exams can judge a person's ability because*** *I think those exams are so* ***time framed and structured*** *that* ***what if you*** *have a tummy ache, a headache that day, or* ***what if*** *you forgot all that you worked for, Or* ***what if*** *you that day just isn't working for you,(….). I I really think* ***doesn't doesn't judge a person****." (Aliyah, Pakistani international)*
> *"…as you know an exam that you would sit for two hours. I really don't like that because, I feel like it's a* ***lot more dependent on luck****." (Andrew, local British)*

The third element triggering TA was the stress for non-native English speakers of translating from English to their mother tongue to understand, then doing the reverse to respond, and finally editing to amend grammatical issues. This process was perceived as requiring significant additional time, meaning that they might not be able to complete the examination in the allotted time:

> *"I read the question, understand it, translate it in my mind and answer it in significant time. This is the biggest challenge for me the time I need for the questions." (Abdullah, local Saudi)*
> *"…the time was two hours. I think is not enough for not native English speaker. Sometimes to read the question and got the idea and then you realize what he wants then. By that time maybe 10 minutes went." (Majid, Saudi international)*

For these reasons, two participants experienced physical symptoms of TA:

> *"I felt really anxious about the time. Really. That feeling of sickness in your stomach continued to get worse." (Nona, local British)*
> *"In a conventional timed exam anything could go wrong.* ***You might have IBS*** *and you need to run to the bathroom." (Aliyah, Pakistani international)*

To sum up, this type of assessment induced high levels of anxiety, but this lasted a short period of time. The issues the students raised were confusion/distraction, the perception of unfairness, and lack of sufficient time for international and Saudi local students. This type of assessment was perceived as a trigger of physical symptoms of TA for two students at the time of the examination but was not reported to lead to depression or long periods of panic attacks as other types of assessment did. The findings are summarized in Table 7.7.

Table 7. 7 Short-timed exam

Subtheme	Number	Description
Short-timed exam	9 students	
• **Confusion and distraction**	2 local British 1 Lebanese international 1 local Saudi	Students feel they need to keep monitoring the remaining time to complete the assessment
• **Unfair representation of their work**	2 local British 1 Lebanese international 1 Pakistani international	Students feel they could do better in a calm environment (e.g. being more creative, recalling information, and avoiding incorrect answers due to rushing)
• **Vulnerable to extraneous factors**	1 Pakistani international 1 local British	Performance on the day of the examination could be affected by various intervening factors
• **Stressful for non-native English speakers**	1 local Saudi 1 Saudi international 1 French international	Non-native English speakers need more time for translation and to amend grammatical mistakes

Timed examinations over 24–48 hours

Timed examinations over 24–48 hours are open book assignments undertaken at home. They were perceived as less stressful by two international students (Diyala and Yusef) but were viewed by two others (Kelly and Mona) as very stressful and triggers of TA. For those who perceived this type of assessment positively, it was accommodating in terms of enabling them to eat or have a nap and work at their own pace without the stress of having to finish in a short amount of time. In addition, it gave them room to review concepts and avoiding getting "stuck".

> *"...when the examination is 24 hours, I could go through it, prepare, do my do my thing, just **I feel relaxed I can go eat**, I could take a **nap** I can do work as I want according to **my own pace**, and it felt more **comfortable** that way. I could always review stuff that **I wanted to review personally** at least a like if the if there's a concept that I'm **stuck** on." (Yusef, Lebanese international)*
> *"...with the open book [24 hours] with the online with the open questions I have **always like excellent, grade**." (Diyala, Saudi international)*

Although perceived as less stressful than traditional examinations, some major issues were raised. First, some felt there was too much freedom in terms of the time and space for the assessment (i.e. completing the work at home). Mona (local Saudi) and Kelly (Chinese international) felt anxious because they were used to a strict start and end time; being at home and having an entire day meant they had to manage their time:

> *"I almost rarely get anxious revising for the exams that I need to attend university to sit them, especially if I have my notes with me. That is because I have to attend to sit the exam." (Mona, local Saudi)*
> *"...if I shouldn't go out for a walk at this time or or if I should go out for a walk at this time, I just don't know, I guess that can be an anxiety. Even though the tutor says you don't have to use all the time, they recommend you, you only use. **I have to use all of it [24 hours]**." (Kelly, Chinese international)*

The second issue was the perception of being isolated from the other students during the assessment. Kelly panicked because she could not tell how others were approaching the assignment and she changed her mind about her topic part way through:

> *"I just choose another question in the middle of the day which **I feel very anxious** because I know other people might already spend their half of day on the same topic, but I just start from, from the beginning again, that kind of feeling make **me very panic**. And and t**hat kind of panic** also **stopped me to focus on the thing** and writing, all I'm thinking is about **what if** I couldn't do well in this exam?" (Kelly, Chinese international)*

Because they were isolated from others, students tended to message each other extensively, which could increase TA:

> *"It is not like [the exam] that has an allocated time to it for me to finish and the messaging other colleagues do and so on. These things are what cause my TA." (Mona, local Saudi)*

Regarding the symptoms of TA associated with this form of assessment, the one most noted was panic, evidenced by two students:

> *"I would feel relaxed once I find the references (to read). The stage of searching for the references is **stressful and confusing** at the same time (...) I feel **panic** (..) this was the **most difficult TA experience** I have been through even though it was a remote open-book exam over two days." (Mona, local Saudi)*
> *"Everybody is 24 hours and I did as well and that kind of long time just make people feel **very exhausted** (...) **I feel so panic**." (Kelly, Chinese international)*

To sum up, this type of assessment could be perceived as less stressful than short, timed examinations because having more time suggests greater freedom and ability to control the environment. However, too much freedom is a disadvantage for some students, leading to new sources of TA, in particular due to having to manage their time and perceiving that all the time must be used, as well as the duration of the stress of the assignment being tiring and triggering feelings of panic. The findings are summarized in table 7.8.

Table 7. 8 Timed exam over 24-48 hours.

Sub-theme	Number	Description
Timed exam over 24-48 hours	4 students	
Positive perceptions	1 Lebanese international 1 Saudi international	Accommodating in terms of being able to eat or have a nap and working at their own pace without the stress of having to finish in a short timeframe. Also, room to review concepts and avoiding getting "stuck".
Negative perceptions		
• **Too much freedom**	1 Chinese international 1 local Saudi 1 local British	Feeling anxious because they used to see strict start and end time for the exam; but to have one full day gives them the feeling of too much freedom to be able to use it (i.e. going out or sleep during the exam).
• **Being isolated from others**	1 Chinese international	Uncertainty and indecision, panicking in the middle of the examination having changed topic and not knowing what other students were doing.
	1 local Saudi	Students messaging each other frequently.
• **TA symptoms**	1 local Saudi 1 Chinese international	Exhaustion, panic, and confusion.

Coursework

In this type of assessment, the student knows the question and his/her work is assessed over a period of weeks. Such assessments include essays, reports, the MSc dissertation, and PhD thesis. This aspect was reported on in all groups, but the SA system has relatively few coursework assignments, predominantly employing traditional examinations. Coursework assignments were perceived as less stressful than traditional examination. There were several reasons for this. First, the students felt they could manage their time better and have more "autonomy" in managing it by doing "a small amount" every day based on their personal circumstances:

> *"…we have the **timeframe** for it, you have more **autonomy to control your time, if** I'm prepared and I've made sure I've given myself the relevant and the necessary amount of time to prepare, then I think I'm **much more calm**." (Sara, local British)*
> *"I would say coursework is good because I like putting in, that something I feel like I **can just do a small amount** today and you can get a lot out of it and I think it's very rewarding." (Andrew, local British)*

Second, it is less stressful because the person can have more control over the information provided and construction of a well-developed argument in the assessment. This was evidenced by Western students, but not Eastern students.

> *"...**you have more time** to **organize your thoughts**, you know, in the **less stressful manner**." (Anna, French international)*
> *"Over a long period of time, **I can develop my arguments very well**. I could produce a lot better work. As I've gotten older like you know, I do better that coursework and I do a lot worse at exams." (Andrew, local British)*

The last reason for perceiving such assessments to be less stressful was the sense of having control over the environment. Unlike traditional examinations, which are vulnerable to the influence of external factors at the time of the examination (as noted previously by Aliyah and Andrew), untimed assessments enable students to work as time allows. As noted by Sara:

> *"When it comes to things like coursework assignments, you have more control over those. And I like **feeling in control** when **I do tests**." (Sara, local British)*

Likely for a self-disciplined person like Andrew, who would "just do a small amount" every day, this type of assessment would be less stressful than for those inclined to procrastinate and leave their work to the last minute. Andrew preferred coursework because it gave him a sense of the control over his time, the arguments, and the environment, leading to submissions he could be confident about. Aliyah also preferred having longer to complete assignments but felt the need to keep making amendments up to the deadline, which led to stress:

> *"But for me **I had time up till the time up till the point** of submission so that time went away more like you know, trying to write the best and trying to be the best you can be. **Long time but stressful**." (Aliyah, Pakistani international)*

For international students, coursework gave them space to proofread their work and avoid being disadvantaged because of English language errors. This was evidenced by Anna:

> *"...you can proofread, and you can use the dictionary etc. You do not have that worry that you've lost marks because of those grammar stupid mistakes." (Anna, French international)*

Thus, the ability to manage one's time and not procrastinate, as well as working within an acceptable level of perfectionism, is required for this sort of assessment to be less stressful. For Sara, the requirement to manage one's time was an issue:

> *"...you have to be able to manage your time properly. It's **very daunting** to know that **sort of you have that power**." (Sara, local British)*

In addition, the longer duration of stress compared to conventional timed examinations has implications for longer term mental health issues and the triggering of TA, as narrated by Aliyah and Paul:

> *"So, I think the **stress throughout the period up to the point of submission**. It's slightly different from sitting in an exam, because in an exam **you know that OK**, **no more**, **nothing else** and you will. You just answer questions, **and you know**, **write stuff**." (Aliyah, Pakistani international)*
> *"...whilst when you're sitting and doing a test you can feel the tense but you feel a bit calmer, but **you don't feel stressed over a significant period of time**." (Paul, Dutch international)*

The underlying feeling of anxiety over the long term is linked to concern about being able to submit on time. This develops on the first day of the semester and lasts until

submission day. The stress of lengthy deadlines can make students feel they are "running" or that time is moving too fast. This was evidenced by both a local Saudi student and international students:

> *"I always fear not being able to submit everything on time and that was one of the things that was one of the things where I feel a bit (….). I feel quite tense actually. It's time you I always feel like I'm I'm running I'm running I'm running. It's a race and sometimes that is. I feel like a bit a bit* ***my breath would become a bit*** *I wouldn't wanna say hyperventilating." (Yusef, Lebanese international)*
> *"…stress over time, like even though, like two weeks felt like one hour, but it's more or less done." (Anna, French international)*
> *"I exerted so much effort for my Master's thesis; worked so hard for it, suffered* ***anxiety from it*** *and was* ***worried about*** *it, took an* ***entire term off to work on*** *it... The exam styles should be changed." (Ahlam, local Saudi)*

This length of time allocated for coursework could induce not only anxiety but also depression, as reflected in Nona's case:

> *"Coursework assessments are… felt very much like, um. It* ***was a long it was a long tunnel****, I couldn't see the end of the end goal." (Nona, local British)*

To sum up, assessments assigned for completion over weeks, rather than hours, are perceived to induce less TA because they give the students the autonomy to manage their time and construct their arguments rather than relying on their memory, and the students have greater ability to control the environment, thus avoiding surprises or reliance on luck at the time of the assessment. However, those who cannot manage their time (e.g. those inclined to procrastination) will be anxious. Moreover, the stress is of long duration because it is difficult to know whether one is doing the right thing or not, the results are not guaranteed, and it takes several weeks to be given the results. Such low but persistent stress over a long period of time can lead to feelings of panic and depression. These findings are summarized in Table 7.9

Table 7. 9 Coursework

Sub-theme	Number	Description
Coursework		
Positive perceptions		
• **Autonomy**	2 local British	Students can manage their time and have more "autonomy", doing "a small amount" every day based on personal circumstances.
• **Control over thoughts and arguments**	1 local British 1 French international	Students can have control over the information provided and the development of arguments.
• **Control over the environment**	2 British local 1 Pakistani international 1 French international	There is less vulnerability to external incidents/influences. In addition, there is room to proofread and avoid being disadvantaged because of English language issues.
Negative perceptions		
• **Need to manage time**	1 Pakistani international 1 local British	The inability to plan, procrastination, and perfectionism will trigger TA.
• **Long-term anxiety**	1 Pakistani international	Anxiety persists, although potentially underlying, until the results are provided.

	1 Lebanese international 1 French international 1 local Saudi 1 local British

7.5.2 Interaction-based assessment

Interaction-based assessment is defined as incorporating oral and visual communication and collaboration with others. This category includes observation, group projects, and presentations and was represented only in the accounts of three students in relation to TA:

> *"…when I have to present in front of a group of people, I **freeze** or… and get that and those anxious thoughts and the **nerves** and the **bodily reactions** that come with anxiety." (Sara, local British)*
> *"…there is more tense when there are an **observation** and **people** in real life situation **are looking at you**, how you **perform** and you know **people are watching** you, so it's, I prefer to make. I feel **calmer** when I do a written assignments or tests." (Paul, Dutch international)*
> *"[I don't like] presentations in front of like the class or in front of a group. Because I hate **talking in front of a group of people**, so that's like one of my **worst nightmares**, I would prefer essays because like essays **you don't have to speak to anyone**, whereas like for presentations like you have to **face people of like in the eyeball**." (Anna, French international)*

Each one of the three had his/her unique characteristics: Sara perceived a lack of control leading to fear and physical symptoms; Paul preferred having control over his environment and disliked being observed; Anna hated the confrontational nature of presentations. For Paul and Sara, the reason for their anxiety was the perception of being unable to control the environment (Paul), as he did not "want anything to go wrong", or being controlled by others (Sara), who said "I feel somebody else controls my emotions". In both cases, they believed they lacked control:

> *"Like observations or the group presentations make me very, very anxious (…) I feel like it's completely **out of my control...** I can't keep **my emotions** in check because I **feel like somebody else its control on them** now." (Sara, local British)*
> *"…you will feel a kind of tense and also a bit of anxiety in my case, because obviously you **don't want anything to go wrong**. It's a formal observation. You want **everything to go perfectly**, so there is that tense and anxiety and both definitely..." (Paul, Dutch international)*

For Sara, there was a fear of being caught out by people with knowledge, which endorsed her fear of being embarrassed and judged. Similar to some characteristics of imposter syndrome, she reported she could present easily in front of children, but being in front of a well-informed person, such as an examiner, she feared getting things wrong and being evaluated negatively:

> *"I can stand in front of 30 children and be absolutely fine, but **when it comes to an adult**, within education **who sort of knowledgeable**. It just throws me off completely. **Maybe that fear of being judged**." (Sara, local British)*

Sara and Anna perceived themselves as being observed by knowledgeable people (examiners and peers), who could inevitably see their mistakes, leading to a fear of embarrassment and judgement:

> *"So with the group presentation, there are **multiple people then observing you**. So, therefore you've got, examiner and your peers. It's like **another level of stress**. It's just sort of a **fear of judgement**, a **fear of embarrassment**. that **fear of getting it wrong**" (Sara, local British)*
> *"I think that in oral presentations the people probably **see my stress,** and that affects my grade and also like so many different things affect in oral exam more than an essay. If **I make a mistake in live** and personal like **they can remember my mistake and it's awful**." (Anna, French international)*

When asked about her reasons for feeling panic in talking in front of people in the academic environment, Anna replied:

> *"I'm from a Caribbean country, so even though it's France but we have a different culture because you **know we are a black and you know it's different over there**. It's very small, there is more poverty, um, so like I was the first person to reach that level of study." (Anna, French international)*

Hence, Anna lacked confidence due to her racial background, which made her hesitant and fearful of being judged for making mistakes:

> *"...once you're like in **front of someone you're on your own** and you have to like explain a subject matter and it's like **if you make a mistake or you get stuck**. It's like you feel like you're going **to be ridiculed or you feel dumb** (...)" (Anna, French international)*

To sum up, interaction-based assessment induced anxiety because of perceptions of being emotionally controlled by others, fear of being caught out, fear of being embarrassed and judged, fear of being observed, fear of inability to control the environment, and lastly the perception of being inferior to others. Interaction-based assessments, such as observation, oral examinations, and presentations, were perceived as stressful and triggers of TA for three participants from individualist cultures (i.e., the UK, France, and the Netherlands), but not collectivist cultures (China, Pakistan, or SA). The findings are summarized in Table 7.10.

Table 7. 10 Interaction-based assessment

Sub-theme	Number	Description
Interaction-based assessment	3 students	
• **Perception of being watched**	2 local British 1 French international	Assessors and colleagues are perceived to be observing and judging the person
• **Perception of being controlled by the environment**	2 local British	They need to control everything in the interaction-based assessment
• **Fear of being embarrassed**	1 local British 1 French international	Fear of making mistakes and these not being forgotten.
• **Perception of being observed by knowledgeable people**	1 local British 1 French international	The feeling that the assessor knows more leading to anxiety
• **Fear of being inferior**	1 French international	As BAME, feeling inferior to others

7.5.3 Written assessments

Written assessments are classified as structured versus unstructured, requiring critical thinking versus memorization, and transitioning from memorization to critical thinking. Each of these aspects can trigger some sort of TA.

Structured/unstructured written assessment.

The format of written examinations can comprise structured questions (e.g. MCQ and true/false) or unstructured (open-ended). This section focuses on TA related to structured questions and the next section addresses unstructured forms of assessment. All the comments relating to the structured questions solely concern the Saudi context. Mona, Khalid, and Ahmad recounted structured questions generated the greatest anxiety for them. Ahmad and Khalid believed such questions triggered "extreme anxiety":

> *"If the exam is of the objective type then that causes me to have **extreme anxiety** because it is a **matter of life or death**. You either get the **full mark** of **lose the full mark**. There is nothing in between such **as getting part of the mark**." (Ahmad, local Saudi)*
> *"[You] have three choices, one is correct, and two are wrong. Once you choose the wrong answer, you will lose the mark. I think these types of **questions triggers off my anxiety**." (Khalid, local Saudi)*

For Mona, the cause of TA was that this type of question was not straightforward, and examiners might change the wording, leading to confusion:

> *"…for the objective test questions the lecturer may change a word or two which may confuse me and triggers off my anxiety (…), I may get **confused** between two answers or more. I mean, I don't know which is the correct answer. I **get anxious** and may **even forget all** what I had revised." (Mona, local Saudi)*

At the same time, such assessments were perceived positively by other Saudi students because they could attain full marks:

> *"The best type of exam is the objective type where the answer is true or false or multiple choice. This is because the answers are set **so I would know if I have answered correctly or not** (…) Objective type of exam questions always **reduce the severity of my anxiety**. The result would be known and always known." (Ahlam, local Saudi)*

The responses relate to the SA context, in which this type of assessment is prevalent. The structured examination can be seen as easier and requiring less effort, as well as being objective and clear as the answer is either correct or incorrect (Bani-issa et al., 2019; Vincent et al., 2022). However, structured questions (MCQ or true/false) can trigger TA as marks are gained or lost, and the probability of losing marks is higher as the wording of questions can be confusing. The findings are summarized in table 7.11.

Table 7. 11 Structured written assessment.

Sub-theme	Number	Description
Structured written assessment	4 students	Structured assessments, including multiple-choice questions (MCQs) and true/false questions

Negative perceptions	3 local Saudi	
• **Only one correct answer**	2 local Saudi	There is only one correct answer. Either gain or lose a mark, with nothing in between. No space for opinions (does not fit with literary or theoretical modules)
• **Not straightforward**	1 local Saudi	Questions can be worded to confuse the reader
Positive perceptions	1 local Saudi	
• **Get the full mark**	1 local Saudi	There is a possibility of getting full marks and can be seen as easier and requiring less effort, as well as being more objective as there is no room for different interpretations or views (fitting more with science-based subjects)

Memorization

Memorization is defined as a closed-book assessment method that is based primarily on the students' ability to recall the module materials and reproduce them in the assessment. The first trigger of TA is the perception that the student must accurately replicate content from the book or they will lose marks. This was evident in Khalid's and Ahmad's narratives:

> *"…what if you made a **mistake in one word**? From my experience, if I changed a word, my **mark was deducted** unlike when you have **the freedom** to express the definition in your own words…" (Khalid, local Saudi)*
> *"I am in an exam and so **I can't come up with my own definition**. I must give a textbook or a **scholarly answer**. 90% [was based on your] memorization. The type of questions that depend on memorization [and memory dump]. I mean the type in which you have **no control over** [content]." (Ahmad, local Saudi)*

This indicates a lack of freedom and the potential for an inability to cope in the case of not being able to recall accurately.

The second issue arises from the concern of being unable to remember sufficient content:

> *"You may remember certain texts or certain authors, but that doesn't mean you remember the entire book, so that certainly adds **more pressure and more anxiety**, I think." (Nona, local British)*
> *"I've not got a very good memory, which doesn't help. You know someone who has for **photographic memory** is obviously going to do better on a written exam than someone like me. It **feels like I am stupid sometimes**." (Sara, local British)*

As this type of assessment favours those with strong memorization capabilities, it can be perceived as unfair:

> *"I know I just don't think it's **a fair assessment** really (…) Um, uh names and dates…, I don't think I can do that if I don't have access to them." (Andrew, local British)*

Thus, to sum up, there are two main triggers of TA: the perception of the need to write the correct answer precisely and the worry that they will not be able to remember the materials in the assessment and thus the assessment disfavours those who do not have good recall. It is interesting that the British students were anxious about this type of the

assessment, unlike the Saudi students, who found it less threatening. The findings are summarized in Table 7.12.

Table 7. 12 Memorization

Sub-theme	Number	Description
Memorization	5 students	A closed-book assessment method that primarily entails students recalling content
Negative		
• **Providing specific responses**	2 local Saudi	A perception of having to write specific responses based on content from the book or losing marks
• **Inability to remember the whole content**	1 local British	A perception of the risk of being unable to recall some content and so losing marks
• **Suited to those with good recall**	2 local British	A belief that the assessment is unfair as it disfavours those lacking strong recall

Critical thinking

Assessments requiring critical thinking are based on open questions that do not have a model answer and requires more work than merely memorizing and repeating the module materials. They require understanding and a level of application. No local British students commented on this type of assessment, but four local Saudi students (Ahlam, Khalid, Ahmad, and Mona) and one international student in the UK (Aliyah) reported that it triggered TA for them.

Ahlam, as a student seeking to get full marks or A+ in her modules in SA, believed that questions requiring critical thinking were challenging and triggered her TA symptoms as she believed it was difficult, if not impossible, to get full marks in such assessments. Indeed, her experience bore this out:

> *"I achieved A+ in most of the subjects* ***except for this one*** *because of the* ***analytical type of questions****. The critical questions caused me to have* ***most anxiety****... My* ***anxiety*** *was triggered off when I entered the exam and was surprised to see that kind of questions. I became* ***anxious****,* ***stressed*** *and* ***worried*** *and* ***all of the feelings you can imagine****." (Ahlam, local Saudi)*

The students identified three triggers of TA related to assessments requiring critical thinking. The first issue was the perception that the questions went beyond the material covered in the course. In other words, it was not possible to rely on having read the content in the coursebook. Three students reported on this:

> *"When I find questions from outside the curriculum. Then, I would be more anxious." (Khalid, local Saudi)*
>
> *"Suddenly there* ***was a question about something we knew nothing about*** *and I didn't know what to spend the time on, searching for the answer or writing it up…* ***The anxiety at that time was enough in itself****." (Mona, local Saudi)*
>
> *"It was* ***not in the textbook*** *… The most challenge I faced was writing the answer and imagining the result." (Ahlam, local Saudi)*

The second issue noted was that the requirements seemed vague, unlike clearly defined questions seeking a specific answer. The questions focused on "opinion" and subjective evaluation and the students did not feel there was any guarantee that their opinions would meet the teacher's requirements. This gave a sense of "uncertainty" and affected their ability to get "full marks". The anxiety could last until the day they received their results as they would not be able to check the correct answers until the marks were revealed. This sense of vagueness triggered TA.

> *"When you ask me to **express my opinion**, maybe you **don't like it**. My opinion is part of my personality. It is not the case with objective tests where it focuses on the actual subject content, and it **specifies the correct answer** (…)" (Ahlam, local Saudi)*
> *"I did not know **what the lecturer wanted**. I was anxious that I may not get **the full mark**. Unlike, if he asks me for the definition …… **I know exactly how I will be assessed**. I could be anxious that **my answer was not what the teacher asked for** and that I **would lose some marks.**" (Khalid, local Saudi)*
> *"But the time after submission was more stressful for like 15 days, 15 days to a month because you **kept thinking what is going to be the outcome** of what you have done." (Aliyah, Pakistani international)*

Unlike memorization or structured tests that have model answers, assessments requiring critical thinking were perceived by the Eastern students as highly subjective and there was no possible means of knowing the results until they were officially released. Since critical thinking questions need greater analytic competence on the part of the students than questions requiring recall of memorized information, they are perceived to be more stressful. They were highlighted by local Saudi and international students, for whom such types of questions were being newly introduced as part of their Master's level degree or studies in the UK. The triggers of anxiety are summarized in Table 7.13.

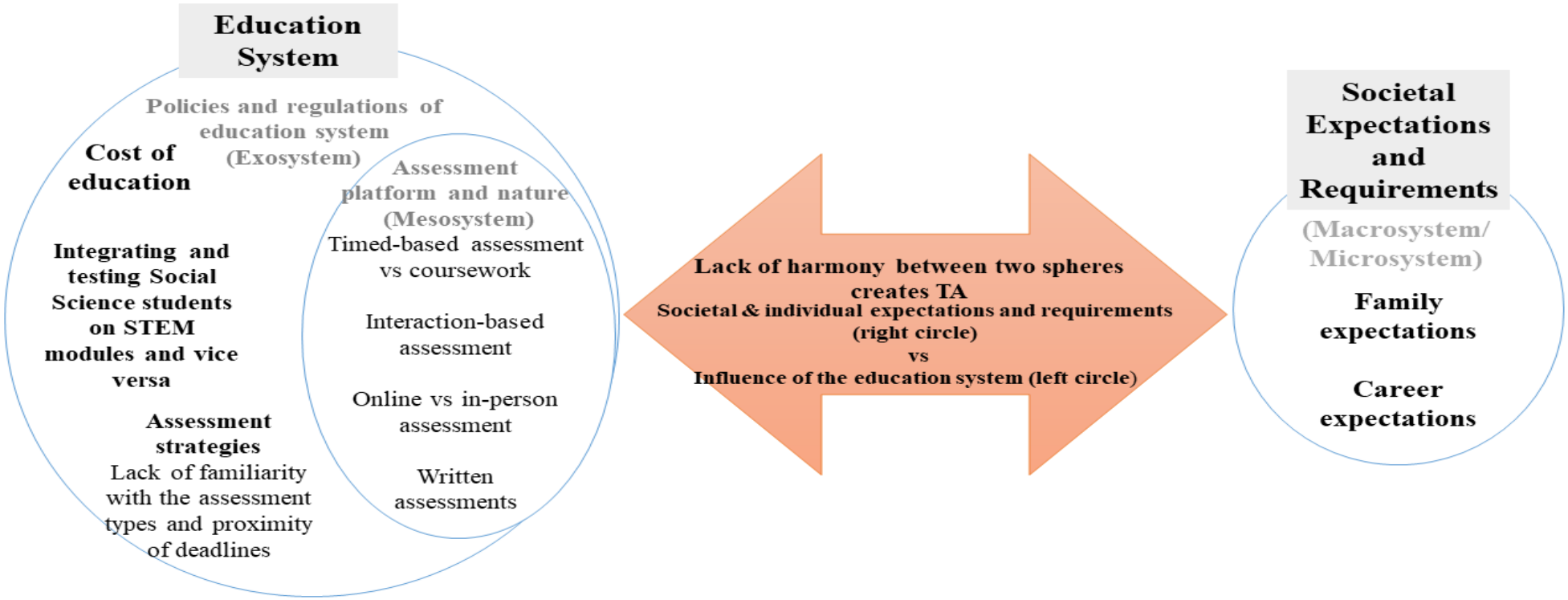
Table 7. 13 Critical thinking

Sub-theme	Number	Description
Critical thinking	5 students	Critical questions are open questions that do not have a model answer and require analysis rather than merely memorizing and recalling the module materials
Positive	2 local Saudi	Suit students from a literary background
• **Securing some marks**	2 local Saudi	Their opinion will secure some marks
Negative	3 local Saudi 1 Pakistani international	Do not suit students from a science background
• **Difficult to get full marks**	1 local Saudi	As there are different views, it is very hard to meet expectations and attain full marks
• **Goes beyond course material**	2 local Saudi	Students expect to see questions directly linked to the module materials and those outside this scope trigger anxiety
• **Focus on opinion and different views**	2 local Saudi 1 Pakistani international	The perceived focus on opinion and subjective evaluation leads to uncertainty and a fear that responses will not meet the teacher's requirements

7.6 Summary

This chapter has addressed the second research question, identifying the perceived factors affecting TA among postgraduate students in SA and the UK. These factors are summarized as comprising institutional aspects (the cost of education and assessment strategy), the assessment platform (online vs offline), and the nature of tests (short, timed examinations, assessments over 24–48 hours, longer duration assignments, and interaction-based assessments), and the written assessment requirements and format (memorization vs critical thinking, structured vs unstructured). These factors trigger TA differently based on cultural aspects (e.g. making peer comparisons, expectations of getting full marks), background (e.g. STEM vs social sciences, examined in the same mother tongue, paying international fees, job requirements, familiarity with the assessment type, being in groups vs being alone in the assessment), and skills (e.g. knowledge of technology, capacity to manage their time effectively, interacting in front of people). Figure 7.5 illustrates the factors influencing TA.

Figure 7. 5 Factors influencing TA.



Chapter 8. Coping Strategies

8.1 Introduction

The aim of this chapter is to investigate the coping strategies used to alleviate TA. Coping strategies are defined are those techniques adopted by TA sufferers to deal with the symptoms of anxiety. Coping strategies in this research are classified into distracting and facing strategies or seeking help from counselling services as summarized in table 8.1.

Table 8. 1 Coping strategies.

Theme 1	Theme 2	Theme 3
Distraction	**Facing the anxiety**	**Counselling**
Eating and drinking (both genders) • Wine for Western students • Sugary food and coffee for Eastern students	Talking to others Self-talk	Cultural obstacles Awareness issues
Games and sports (men)	Psychological preparedness	

8.2 Theme 1: Distraction

The first coping strategy was distraction, disengaging from the source of anxiety and engaging in other activities that could bring pleasure, such as shopping for women and games for men, or eating and drinking (sugary food and coffee for Eastern students and wine for Western students) hoping for escape from TA. Shopping was a distraction Kelly used to cope with TA, as illustrated by the image of a supermarket in Figure 8.1.

Figure 8. 1 Representation of strategy for coping with TA

"I don't want to stick in my room all the time and thinking about exams and the preparation of the exams. So when I feel I am overwhelmed and anxious … Supermarket is the only entertainment I got." (Kelly, Chinese international)

For men, distraction could be found in engaging in games or sports. Yusef and Andrew played sports as they believed these activities reduced their TA, as illustrated in the following quotation and Figure 8.2:

> *"I think the walking helps because it releases **certain chemicals** inside of my body rather than me just feeling like sitting all day and studying and feeling anxious about the exam, I emit the **energy in a positive way**." (Yusef, Lebanese international)*

Figure 8. 2 Representation of strategy for coping with TA

"…it was just nice walking around just nice to get away from it physically, …some kind of escape, or break at least." (Andrew, local British)

Eating and drinking were perceived as distractions, with the choice of food and drink differing based on the culture. For those from Western cultures, drinking wine was perceived viewed as reducing anxiety and both Nona and Anna submitted pictures of wine as a reflection of how they coped with their TA (see Figure 8.3). Nona recounted that she did not normally drink wine but would when her TA was triggered to relax, take her mind off examinations and help her sleep.

Figure 8. 3 Representation of strategy for coping with TA

*"I don't drink normally, but I needed something **to calm my nerves**, and **give me a little bit of confidence**. I just didn't have any confidence in my own ability at the time, and I remember thinking that. **that that will help.**" (Nona, local British)*

*"I would like indulge in some wine to like **unwind and relax**. Kind of like **help me sleep**. **Forget the stress** of like okay." (Anna, French international)*

For Eastern students, especially Muslims, drinking wine is not socially acceptable. The Eastern students drank coffee instead as a distraction, as represented in Kelly's narrative and Figure 8.4:

> *"So, **making a coffee** is also another thing I would do **to distract myself** from this study for a while." (Kelly, Chinese international)*

Figure 8. 4 Representation of strategy for coping with TA

"I drink a lot of coffee during exams, I enjoy them. I keep taking one cup after another (…) I drink a lot of coffee. Also, during my study breaks I immediately go to it and make a cup of coffee." (Abdullah, Saudi international)

Also, Eastern students tended more towards sugary food, which can give pleasure briefly and reduce anxiety, especially for stress eaters (Pollard et al., 1995). Yusef reported eating during stressful times, feeling that chocolate, fast food and tea would calm him down by giving him a "sense of satisfaction". The picture used to represent his way of dealing with TA was a "garbage can", as illustrated in Figure 8.5, chosen to reflect the waste from the food he consumed.

Figure 8. 5 Representation of strategy for coping with TA

"The garbage can refers to all of the rappers I've thrown... you could refer to specifically to chocolate, tea bags, or the fast food. It calms you down. It gives you a bit of sense of satisfaction." (Yusef, Lebanese international)

To sum up, the use of distraction as a strategy was not only to disengage from current engagement in the test and being overwhelmed thinking about it, but also escaping to something that would give pleasure and satisfaction. The definition of this differed. Women tended to going shopping, while men were more likely to play sports or go for a walk. The choice of food and drink differed based on culture: those from Western cultures might drink wine to relax or to celebrate success or the completion of a challenging activity, while those from Eastern cultures tended towards coffee and sugary or fast foods. These findings are summarized in Table 8.2.

Table 8. 2 Distraction strategy

Theme 1	Number	Description
Distraction strategy	4 International 2 local British	Reducing anxiety by avoiding the source and engaging in pleasurable activities
Eating and drinking (both genders)	4 International 1 local British	Eating and drinking provide a pleasurable distraction and relaxation
• **Sugary foods and coffee for Eastern students**	1 Lebanese international 1 Chinese international 1 Saudi international	In Eastern societies, sugary foods and coffee were perceived as means of relaxation
• **Wine for Western students**	1 local British 1 French international	In Western societies, wine was perceived as a means of relaxation
Games and sports (men)	1 Lebanese international 1 local British	Sports were perceived as reducing anxiety by distracting the players and producing chemicals increasing the sense of wellbeing

8.3 Theme 2: Facing strategies.

Facing strategies are techniques used to confront TA by focusing on re-interpretating the situation (i.e. the ability to deal with the test, or the external environment in terms of reducing the perception of the difficulty of the examination or reducing the negative consequences) and planning and preparing for the assessment. The sub-themes were talking to others, self-talk, and planning and preparing thoroughly.

8.3.1 Talking to others

Talking to others is a discursive process that can be used to re-interpret the environment. It takes three forms: talking to God (praying), i.e. believing in something bigger than the individual so that confidence in one's ability improves and the valence of negative consequences is reduced; talking to parents to avoid their possible negative reactions in the case of receiving low marks and also to encourage and improve one's capabilities; talking to friends, seeing that others are doing the same and thus being better able to cope. This theme is summarized in table 8.3.

Table 8. 3 Talking to others.

Strategies	Example	Students	Mechanism
Talking to God	Eastern (Muslims)	2 Local Saudi	Gaining power from God, improving perceptions of one's ability and reducing the perceived magnitude of negative consequences
Talking to family	Eastern students	1 Chinese international 1 Local Saudi	Managing parents' expectations to avoid their potential anger or blame for low marks
			Being encouraged and gaining self-belief
Talking to friends	Eastern students	1Chinese international	Seeing that others are doing the same thing, gaining a sense that the exam is doable and will not be too difficult

	1 Lebanese international 1 Local Saudi	Getting social support and reassurance that it will not be the end of the world (reducing the valence of the negative consequences of failing)

The first strategy was talking to God. One person believed in spiritual healing through connecting to something bigger than them. Ahmad, as a Saudi Muslim, believed that praying and supplication gave him a "big positive psychological push":

> *"I think, as **Muslims**, prayers and supplication definitely give us a **big positive psychological push.** The whole thing **will pass.** If a person applies [these religious methods] they would get some form of **comfort** to face these **pressures**." (Ahmad, local Saudi)*

After asking him to elaborate on this point, he said he believed that praying would "re-energize" his spirit:

> *"…if I pray two units of prayer, afterwards I would feel **re-energized**. I mean better than sitting there in a **depressed state**, sitting, for example, in the room, I **change my pattern** by getting up and praying. I feel as if everything has been **eased** when nothing has changed." (Ahmad, local Saudi)*

The second strategy was talking to parents to gain reassurance and so alleviate TA. Talking to one's parents was noted as a coping strategy by Eastern students but not Western students. Kelly and Mona stated that they found talking to their parents reduced their anxiety:

> *"I would talk **to my parents**. When I feel very anxious and panic, I **would just chat with them (parents)** and then I will **feel OK** I'm **fine** again." (Kelly, Chinese international)*
> *"…my parents are very **encouraging**. They say to me that I can do it; I can get the grade and so on. [Their words] **encourages me** [to keep going] and **reduce my anxiety**." (Mona, local Saudi)*

Mona also made an interesting point, saying that one rationale for talking to her parents when stressed was that they were the ones who would blame her if she did not get the required marks. As detailed before, parents' expectations of Eastern students are often very high and thus having a conversation could be a way of ensuring they kept this source of anxiety under control. For Mona, engaging her parents in conversation about her TA ensured she maintained a strong relationship with them to avoid issues if she did not get good marks.

Talking to friends, the third strategy, was perceived by Eastern students as a powerful mechanism to reduce their TA; as Yusef said, not talking about TA would be like a "bubble waiting to burst" with reference to the person in the vignette. Kelly also referred to seeking support from friends.

> *"I mean people could seek **help from their friends** I could even discussed this issue with my friend. I think a lot of people have TA." (Kelly, Chinese international)*
> *"…she **doesn't have a safety net in terms of a circle with her as she** doesn't have anybody, she doesn't have too much people to talk too many people to talk, yeah, and like*

> *this **is a bubble waiting to burst**...I talked to close, close friends." (Yusef, Lebanese international)*

In another example from SA, a friend played a role in alleviating TA but without being directly asked. Ahmad recounted his experience of sitting alone and feeling stressed; his friend saw him case and told him "it is not the end of the world if you failed". This was perceived by Ahmad to be effective in reducing his TA:

> *"I remember sitting on the chairs under the stairs, really anxious, when a friend came to me and said '**It is not the end of the world if you failed**' I still repeat those words which **calm my fears down**." (Ahmad, local Saudi)*

Although talking to others could be perceived as an alleviation strategy for some students, it could also be perceived as a sign of weakness. This was articulated by Diyala and Aliyah:

> *"This is **culturally** in SA, **we don't use to to ask help from the people,** this is something [associated] with your **mental health**, some students keep their issues **without sharing.**" (Diyala, Saudi international)*
> *"...international students are **taught to deal with things themselves**, and internalize more than rather go and talk about it, and find an answer." (Aliyah, Pakistani international)*

To sum up, talking to God, parents and friends was perceived to be an important coping strategy in confronting TA. Spiritual power, translated through praying and supplication, could alleviate TA and improve resilience, aiding the students' belief in their ability to cope and reduce the symptoms of TA. Talking to others is common in collectivist cultures but there may also be avoidance in the face of potential judgment and a competitive environment, in which case sharing experiences of TA could be seen as a sign of weakness.

8.3.2 Self-talk

Self-talk was a technique used by the students to deal with their negative thoughts about themselves or thinking too much of the negative consequences of failing assessments. This theme was found among all cultural groups and was identified by eight students out of fifteen. There were three types of messages in self-talk: countering arguments, living with anxiety as it will pass, and distraction.

The first type, countering arguments, entailed, for example, saying "I am good enough" to confront the thought "I am not good enough". Four students identified this as a strategy:

> *"I'm not good enough. I always think in my head like. I could do much better than this, I could do much more than this. I always have to remind myself I am good enough. I want to push those bad thoughts away." (Yusef, Lebanese international)*
> *"I already don't think I'm good enough as a person. they sort of having a ripple effect. I'm going to do my best and that's okay." (Sara, local British)*
> *"I think having more **faith in my ability**. I think knowing that **I am capable**." (Nona, local British)*

> *"I write **encouraging words** to reduce my stress [to believe in myself]." (Mona, local Saudi)*

However, the effectiveness of this strategy is doubtful:

> *"…it's **like sort of fighting** with another side of me saying **you can only do your best**, so I'm sort of in **two minds about mentally about how to perceive** tests." (Sara, British local)*
> *"…so I think it would be more having more self-belief would stop me having that feeling I **'Fake it until you make it'.** So quite often I will **say it but not believe it. if I keep saying it, it just becomes something that will stick, and I will hopefully start to believe**." (Nona, local British)*

The second narrative was living with anxiety by convincing the self that "it will pass". This was evidenced only by the Eastern students. This argument depicts TA as "a great pressure" that one has to face and the rationalizing that it will not go on for ever:

> *"I live in a **great pressure** and I **must face**. I must face this period of time because it will pass. **I am living with anxiety and stress. I need to live** [through it]." (Ahmad, local Saudi)*
> *"…because I am aware that I was anxious, I will just tell myself that: I know I'm anxious. It's OK **it will pass** and just going to wait for few minutes." (Kelly, Chinese international)*

However, similar to the first strategy, this is not always effective as it also has the effect of having two voices in one's head:

> *"But there's **another voice in my head** (laugh), Just **saying no no, no no**, that's really difficult question that **you're only finished 2000 words of the whole essay** and **you wrote it terribly**. So **there's two different voices in my head all the time**." (Kelly, Chinese international)*

The third self-talk narrative focused on distracting the mind from thinking negatively, something evidenced only among Saudi and international students. The three strategies were thinking of now not tomorrow (Aliyah), having no time for anxiety or changing the scene (Mona), and thinking of something that made her happy (Diyala):

> *"I **don't think** about **what's happening tomorrow**., I'm eating, I'm eating an apple, It delicious is think about this apple stay here in the **apple that helps that helps**… otherwise **I can just kill myself 5 minutes before the actual exam**." (Aliyah, Pakistani international)*
> *"I always trying to be like **drink the water** first, **relaxation**, **trying to think about** something like **make me happy**." (Diyala, Saudi international)*
> *"I try to keep away from getting anxious by saying to myself that there is **no time for anxiety.** Being anxious is of no benefit. (…)" (Mona, local Saudi)*

Self-talk as a strategy entail confronting the symptoms of TA, such as attacks of negative thoughts, by countering them with positive thoughts, reminding oneself that the situation will resolve, or distracting oneself. However, the first two strategies in particular are not necessarily effective or sufficiently persuasive. The results are summarized in Table 8.4.

Table 8. 4 Self-talk strategy

Strategy	Target	Mechanism	Student	Effectiveness
Counter argument	I am not good enough (thoughts of	Saying I am good enough	Lebanese international	Seems to be effective
		Writing down encouragement	Local Saudi	Somewhat effective

	being incapable)	Fake it to make it	Local British	Not effective but over the long term may be effective
		I am not good enough, but I am doing my best	Local British	Two voices in the mind – not very effective
Living with anxiety	Pressure and stress (painful experience)	It will pass	Local Saudi	Improving patience with the pain of anxiety
		It will pass	Chinese international	Two voices in the mind (not very effective)
Distraction	Negative consequences	Thinking of now instead of negative consequences	Pakistani international	Sometimes effective
		Thinking of something happy	Saudi international	Effective with drinking water and trying to relax
		Changing the scenery	Local Saudi	Sometimes effective
		Reminding herself there is "no time for anxiety"		

8.3.3 Psychological preparedness

Psychological preparedness is defined as the person's self-perception of being ready to manage the environment and avoid distressing events. It can be depicted as the students' perception of having control over the assessment environment through setting boundaries for the assessment process in terms of the activities needed to get the required score.

Familiarization is one of the techniques of planning and preparedness that can be used for examinations based on memorization. The student psychologically prepares himself/herself for timed examinations by reading similar questions from previous papers or based on the same "logic". By doing this, the stress of being surprised with new questions can be diminished. This strategy was mentioned by Eastern students, from contexts where timed assessments (i.e. examinations) are prevalent and the tests tend not to change:

> *"…in China, we used to have a lot of **past paper**, and all you do is just answering the questions over and over again so that **you are familiar** with that kind of questions. Instead of **thinking** about what this question is actually asking me and use the **logic** to solve it... I **wouldn't really feel** that kind of **anxious** as here in the UK." (Kelly, Chinese international)*
> *"I have gone passed anxiety as long as I have revised the type of **questions and know my subject very well**." (Ahlam, local Saudi)*

Planning and organization comprise the second psychological preparedness strategy. For coursework assessments, planning and organizing one's written work during the course is key. Ahmad, Khalid, Ahlam, Kelly, and Sara believed that the best way of dealing with anxiety was to invest in preparing and organizing more for the assessment as procrastination would only increase the anxiety:

> *"I am anxious and feel under pressure so how should I face it? I should face it* ***by preparing for*** *the exam." (Ahmad, local Saudi)*
> *"It is better* ***to study regularly and to organize your studies*** *or life in general. If you do, then you will accomplish more.* ***Procrastination*** *is one of the things that* ***causes anxiety.*** *" (Khalid, local Saudi)*
> *"First of all, by being fully prepared for the exam... my early preparation allowed me to* ***feel relaxed****." (Ahlam, Saudi local)*
> *"…it's preparation by having a* ***clear plan for my exam*** *before the exam* ***this is helped me*** *this is* ***affected positive way****. I feel* ***more relaxation*** *more* ***like confident****." (Diyala, Saudi international)*
> *"…try to* ***just prepare for*** *the next exam." (Kelly, Chinese international)*

Similarly, Sara and Andrew (local British students) believed that preparation was key and that failure to plan could lead to failure:

> *"…you can make yourself feel the maximum amount of prepared and you can then* ***control your your own feelings*** *and* ***perceptions of the exam yourself****, then you can really improve your TA." (Sara, local British)*
> *"[Because of a lack of planning and preparedness] I did really badly, would it have an effect on my wellbeing like a meaningful or a significant effect." (Andrew, local British)*

Preparedness is related to a psychological feeling that could lead to unintended consequences if not well managed. The anxious person wants to have a sense of being "extremely prepared". For instance, Yusef felt he needed to be fully ready for any surprise that could come up during the assessment, which might distract and affect him:

> *"I'd say being very* ***well prepared*** *like* ***extremely prepared****, if you* ***run out of ink*** *and then you have to* ***jump*** *and you you have to do something else it takes away from* ***a bit of your focus****." (Yusef, Lebanese international)*

The main challenge in this strategy is that psychological preparedness is not absolute and is subjective, as defined in Theme 1 (thoughts of being incapable). Moreover, psychological preparedness may not be attainable for some students, triggering long-term anxiety about their ability to cope with the assessment requirements:

> *"…we* ***couldn't really control*** *their questions in the exam, and w****e couldn't control how*** *we are doing the exams and the way, I think that kind of complex makes me having this very high level of TA." (Kelly, Chinese international)*

The second challenge is that if the person feels that the plan is not going well or as expected, the anxiety increases, and TA is exacerbated. For instance, Mona, who expressed the belief in the power of planning and avoidance of procrastination as the optimal strategy to avoid anxiety, nonetheless suffered if her plans did not work and her routine was disrupted for any reason:

> *"…if I don't organise my time I get anxious.* ***if I feel this routine suddenly gets disturbed then I get anxious,*** *and all the information (in my head) evaporates. So, if I didn't* ***follow exactly what I had organized*** *then I would* ***get confused*** *and become more anxious." (Mona, local Saudi)*

To synthesize the results here, planning and preparing well are defence mechanisms that give the impression of the ability to cope with the environment. This theme is defined as planning and preparing thoroughly and familiarizing oneself with the test requirements and its nature. Students with TA need to avoid procrastination and for many of them, the

first ranked strategy was to plan and prepare. This helped reduce the potential for unwelcome surprises in the examination and gave them a sense of confidence and control over the environment, thus reducing their anxiety. Despite the effectiveness of this strategy, there were two main challenges. The first was that some students might not feel fully prepared or able to control their environment no matter how much effort they put in ahead of time. Second, this approach could be a source of anxiety in itself because any disruption to the plan could give a sense of lack of security and the threat of being unable to cope with the environment, triggering anxiety symptoms. Finally, familiarization with previous examination papers was perceived to be an effective strategy for preparing for timed assessments based on memorization. The findings are summarized in table 8.5.

Table 8. 5 Psychological preparedness

Theme	Number	Description
Psychological preparedness	Enhancing the psychological perception that one can reduce TA if well prepared for the examination	
Familiarization	Chinese international local Saudi	Answering former papers to prepare for the same type of questions and avoid surprises in closed-book examinations
Planning and organizing	2 local British 4 local Saudi Chinese international	Allocating time and effort over a period of time to avoid being under pressure at the end when undertaking coursework assignments
Not an effective strategy	Difficulty reaching a state of full preparedness, supporting the negative thoughts of "being incapable" affecting TA	
Being extremely well prepared	Lebanese international	Students seek to be "extremely" prepared to avoid surprises
Thoughts of being incapable	Chinese international	Full preparedness is not attaining for some suffering from TA
Anxiety if her plans do not work	local Saudi	Fragile, as any change in plans could trigger anxiety

8.4 Theme 3: Counselling

Seeking counselling as a coping strategy was not noted except by two students, Anna and Nona:

> *"I'm seeing **a therapist**, but it's things like that I've always had like those kinds of reactions I've always had it." (Anna, French international)*
> *"I spoke to about the counselling services and at **my postgraduate university** were amazing and it was something **I used**." (Nona, local British)*

Regarding the perceived barriers, two main factors were viewed by participants as obstacles to seeking counselling: cultural factors and lack of awareness.

8.4.1 Cultural factors

Cultural factors can stigmatize TA sufferers as under the evil eye, crazy or weak. Those who seek help from a counsellor can thus be vulnerable to bullying or rejection by those

around them. Regarding the first point, those who consider TA to be related to evil would argue there is no need to seek professional help; rather, praying is the solution:

> *"Or they could have put the blame of TA on **the evil eye phenomenon or** magic being done. She would say **that magic has been done** on her or that she has this and that. This kind of **thing exists a lot**." (Ahlam, local Saudi)*

The second issue was being perceived as mad by society. This was noted by Ahlam, Khalid and Mona and Anna in relation to the vignette when I asked them about the potential for her to go to counselling and why/why not:

> *"...she fears them **labelling her as mad** or as anything else by just going to see them." (Ahlam, local Saudi)*
> *"In our society, no one sees a therapist or a counsellor. If you go to a therapist or counsellor, then for them, **your life has ended**. They have this idea that on day you **could end up in a mental institution**." (Khalid, local Saudi)*
> *"...it could be scared from her family's view or the view of those around her that there is **something wrong with** her because she saw a counsellor. Why did she go to the counsellor? **What is wrong with her**?" (Mona, local Saudi)*
> *"...if he went **to see like a psychologist like is he crazy**? Like you know. So, I think is what he thinks of himself and what society thinks of him." (Anna, French international)*

Thus, going to counselling can stigmatize those with TA as weak or vulnerable. This was observed by Yusef, Ahmad, and Sara:

> *"I wish more people would not feel embarrassed to talk about their problems because a lot of people, **they don't want to look weak** like it's **more of an ego thing**." (Yusef, Lebanese international)*
> *"They see as **he is ill**. I think that, currently, the dominant phenomenon in the society we live in is such a person would be considered to be ill. It is [seen as] something negative, not positive." (Ahmad, local Saudi)*
> *"Some people **see things like that [as weakness]**, you know it is sometimes it's difficult to say I'm struggling and I need support and also access to these services...it's nothing to be worried about, it's nothing **to be scared of**, it's nothing to be **embarrassed about**, **if you ask for help then you are weak.**" (Sara, local British)*

Thus, those who suffer from TA, or are known to suffering from TA, could be bullied, or socially rejected by the people around them. According to Yusef, Kelly, and Ahmad, society perceives it as very negative, and the effects can be extreme:

> *"This is seeking medical help as **opposed to other societies** that are actually that actually make this **looks so bad**, weak and **make fun of him**. I wanna call it **bullying**, that is why you so many different stories about people that have committed **suicide** because of this." (Yousef, Lebanese international)*
> *"...they [TA sufferers are] **ashamed** to share that kind of thoughts to others. They would think that's **so silly to have** that kind of feelings." (Kelly, Chinese international)*
> *"It is all because of **fear of the people's gossip**, the student would decide **not to seek help**. It is all **because of society** ... the society's looking down at those going to such places ... It could also be feeling **shy** and thus finding **it difficult to go** ... there are still some people who **disgrace** those who go to psychologists or counsellors." (Ahmad, local Saudi)*

To synthesize the cultural factors, there are three main issues: being perceived as being under the evil eye, mad, or weak. In collectivist, competitive societies this could lead to bullying. Eastern cultures (SA in particular) are more subject to such influences than other societies based on the current evidence. The evil eye is a cultural belief, with the

perception that being sick suddenly comes from an evil power and thus there is no need for counselling as this is not a psychological issue, rather a religious one. The second case – the fear of being perceived as mad – was noted by both Saudi students and the French student. Finally, the fear of being perceived as weak was expressed by two Eastern men and one British woman, which is interesting and suggests that there is a commonality across contexts in this regard. The findings are summarized in table 8.6.

Table 8. 6 Cultural factors

Sub-theme	Number	Description
Cultural factors	4 local Saudi local British French international Chinese international Lebanese international	Perceptions of social or cultural values that lead to avoiding help from counselling services
Influence of the evil eye	2 local Saudi	TA is due to the person's sins and there is a need to be closer to God through prayer
Being mad	3 local Saudi French international	Seeking counselling is a something that mad people do
Being weak	Lebanese international local Saudi local British	Weak people need counselling
Being vulnerable to bullying	Lebanese international local Saudi Chinese international	Being perceived as being under the evil eye, mad, or weak due to seeking counselling can lead one vulnerable to bullying from society

8.4.2 Lack of awareness

The second issue hindering those with TA from reaching out to counselling services is a lack of awareness that this could be a remedy for the symptoms and causes. This issue was raised by nine students from among all cultural groups. Both Sara and Andrew (local British students) knew many people struggling with TA but there was a lack of faith in counselling services, and they were not advertised:

> *"…it's just because **they don't know**, what's good for them a lot of times." (Andrew, local British)*
> *"People you know don't believe in psychological services. I have been in university education for four years, and I I **don't think I've heard much about it**." (Sara, local British)*

Similarly, Kelly, Aliyah, and Yusef (Eastern international students) believed that students were not aware of TA or the availability of counselling services:

> *"…people **don't know the supports**. So, maybe I don't know **the college or other places** should just **advertise** more about their service and this concept **of TA** or any other mental health issues." (Kelly, Chinese international)*
> *"They just **don't believe in it**. They don't think **that there's a real thing.**" (Aliyah, Pakistani international)*

> *"I've never sought counselling because I think I've never been proper* ***been properly introduced to counselling.*** *" (Yusef, Lebanese international)*

Moreover, Khalid, Diyala, Ahmad, and Ahlam, from the Saudi context reported that there was a lack of awareness among teachers, parents, and students:

> *"There are already some people who do not* ***believe that there is something called TA.*** *" (Khalid, local Saudi)*
> *"…****we don't have information*** *about what the* ***specialized*** *they can help us, help the students with the* ***fear with anxiety****." (Diyala, Saudi international)*
> *"By* ***advertising especially*** *at the time of exams. They should advertise that they are present and do exist." (Ahlam, local Saudi)*
> *"****[lack of] awareness*** *amongst the teachers, the family and the guardians. …. You just need to increase their personal awareness to advise. It does also have an effect on them." (Ahmad, local Saudi)*

Interestingly, in the Saudi sample, due to cultural barriers, three participants believed that the counselling services should seek out students with TA not vice versa. They argued that the counsellor "should not wait for the student" but be proactive in asking students about their mental health and their issues to provide support as early as possible. The rationale here, as offered by Khalid, is that society is against visiting counsellors. Thus, if the counsellor takes the initiative, students with TA may have the courage to go for counselling.

> *"****Reaching out to people****. I, as a counsellor,* ***should not wait for the student*** *(to come to me). I would see a form of communication from the counsellor asking how things are going and if there any problems faced, that* ***would make me comfortable enough to tell them*** *the problems I am facing. There could be a* ***compulsory face to face meeting*** *with the counsellors that* ***everyone must attend*** *and it could take place at the beginning of the term, in the middle or end of it. The counsellors should make these moves. The* ***students will accept them.*** *" (Ahmad, local Saudi)*
> *"I think the role of counselling* ***services is not waiting for someone to come*** *to them but to take the initiative. It is better to do that since some students have this idea* ***that nobody should know you****. They know society's view and that is if you see a counsellor, then there is something psychologically wrong with you, and they will look at you that way.* ***So it is better if the counselling services take the initiative.*** *" (Khalid, local Saudi)*

Similarly, Ahlam offered innovative ideas to help the counsellor find those with TA by having "boxes of secrecy" in which students could leave messages noting their problems and phone numbers so that the counsellor could find them:

> *"Secondly, places* ***'boxes of secrecy'*** *where the student writes their problem on paper along with their phone number, if they wanted to be contacted, and place the paper in the box. Students and most of those suffering from psychological problems* ***need privacy.*** *" (Ahlam, local Saudi)*

To sum up, lack of awareness as an issue was raised in all contexts and the participants believed the schools should play an active role in improving awareness of the existence of TA and the availability of counselling services to alleviate and deal with the symptoms and causes. In SA, where cultural factors are a strong hindrance to visiting counsellors,

the recommendation was for the counsellor to seek out students with TA and talk to them instead of expecting the students to have the courage and will to go to them. The findings are summarized in Table 8.7.

Table 8. 7 Lack of awareness

Sub-theme	Number	Description
Lack of awareness	9 students	Lack of awareness means students may not know they need counselling services
University not informing students about TA or counselling services	2 local British Pakistani international, Lebanese international , Chinese international 3 local Saudi 1 Saudi international	Universities in the UK and in SA are not doing enough to raise awareness of TA or the possibility of having counselling to address it
Counsellor taking an active role	3 local Saudi	Due to cultural issues, students avoid asking for counselling. Thus, the advice is that counsellors should meet all students and identify those needing help.

8.5 Summary

This chapter has sought to answer the last research question concerning coping strategies for TA, namely mechanisms to reduce the tension between the individual, the societal sphere, and the educational sphere. Such strategies can include escaping or distracting oneself to avoid facing anxiety. Alternatively, there are facing strategies that involve re-interpreting the environment in terms of one's capability, reducing the valence of negative consequences, redefining the level of difficulty or challenges in the education system. Strategies include talking to God, oneself, or to family and friends. For competitive societies, talking to others could be seen as a sign of weakness and thus counselling is one potential solution.

However, counselling is scarcely used by Eastern students for cultural reasons and due to lack of awareness. Cultural reasons include it being a sign of weakness or madness, leaving the person vulnerable to bullying. Thus, people avoid counselling due to fear of being judged by society. What is more, there is a lack of awareness in Eastern cultures and Saudi students proposed ideas to protect the privacy of students, such as counsellors taking a proactive role in seeking out students with TA rather than expecting them to recognize the need for help and find it.

Chapter 9. Discussion and Conclusion

9.1 Introduction

This chapter critically evaluates the research findings in the context of existing literature, aiming to delineate the reconceptualization, expansions, and discrepancies that emerge within the established corpus of cross-cultural psychology, particularly in relation to Test Anxiety (TA) among postgraduate students across two distinct educational and cultural environments. The structure of this chapter is as follows: initially, it revisits the research scope of the study (Research Aim: Section 9.2), setting the stage for a detailed examination and discussion of each research question in subsequent sections (Section 9.3 and 9.4). Thereafter, the contributions of this study are articulated in Section 9.5, which in turn informs the delineation of practical implications in Section 9.6. Despite employing multiple several methods, this research acknowledges certain limitations, which are detailed in Section 9.7. These limitations serve as the foundation for proposing future research directions, as outlined in Section 9.8, culminating in a conclusion in Section 9.9.

9.2 Research Aim

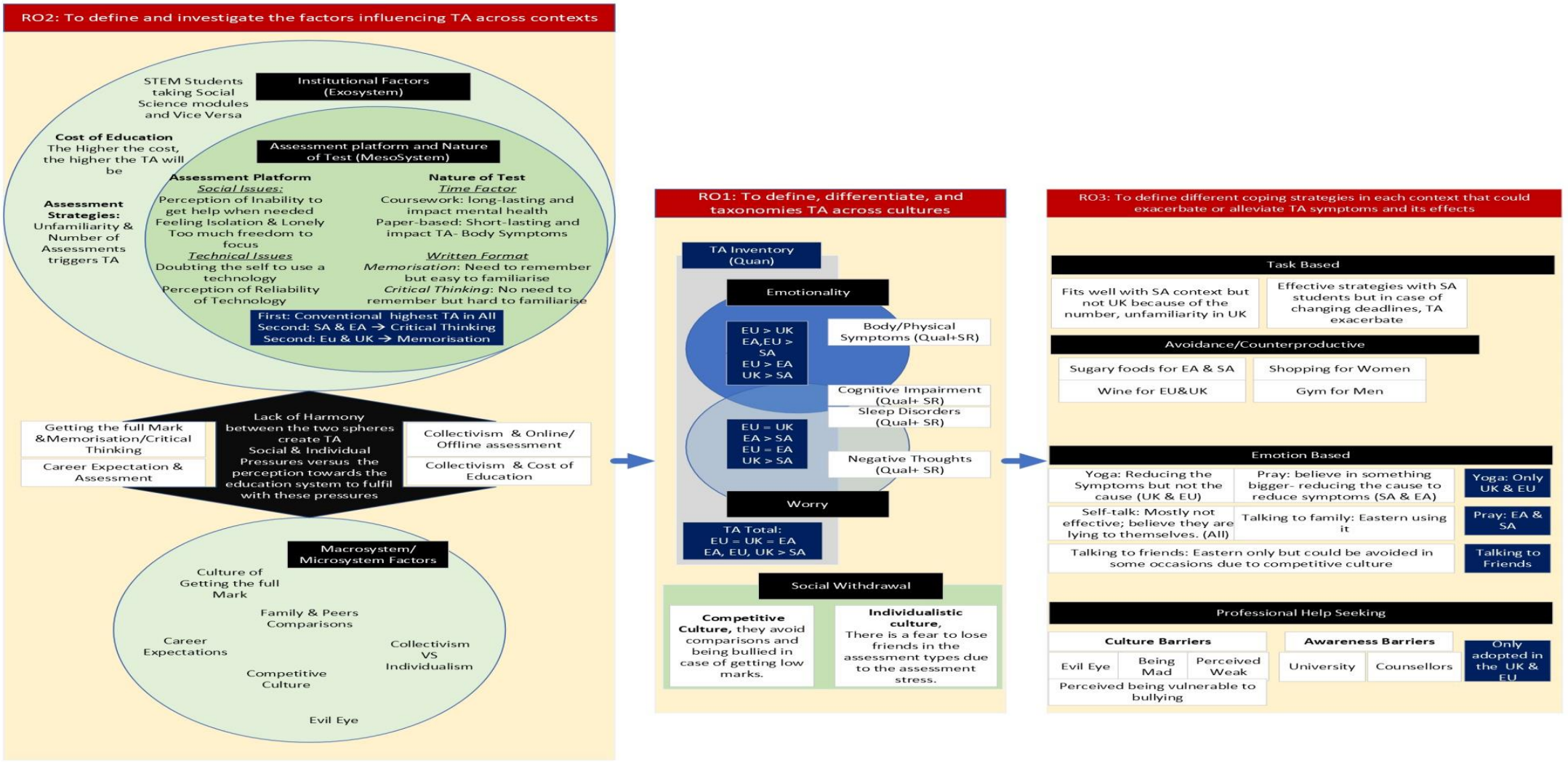
This study aimed to develop a framework to elucidate the individual and cross-cultural differences influencing the experiences of TA among both international and local students. In pursuit of this goal, the research was structured around two central questions: (1) How do students' experiences of TA vary across cultural and educational contexts? (2) Why are there differences in these experiences and outcomes? These overarching questions were further delineated into three specific research objectives: RO1, to define, differentiate, categorize TA experiences in different contexts; RO2, to define and investigate the factors that influence TA across various cultural and educational landscapes; RO3, to define the different students' strategies for managing and mitigating the symptoms and effects of TA.

The research methodology encompassed a systematic review of literature pertaining to TA between 2000 and 2019 within university settings, covering 81 studies across 24 countries, and integrating this with data from quantitative surveys and qualitative interviews. The scope of this research delineated and compared four groups, examining a matrix of experiences among Eastern (e.g., Saudi Arabia, Lebanon, China, Pakistan, and India) and Western (e.g., UK, France, Netherlands) students in both local and international contexts. The Eastern perspective included local Saudi students and Eastern

international students in the UK, while the Western perspective consisted of local British students and European students in the UK.

With regard to RO1, as visualised in Figure 9.1 in the middle box of the diagram, the findings indicated variations in TA across the studied groups. Local Saudi students (N = 153) showed the lowest levels of TA, in contrast to European students (N = 39) who displayed the highest levels. This was followed by Eastern international students (N = 78) and local British students (N = 159). Additionally, the research illuminated that TA includes symptoms beyond worry and emotionality, encompassing cognitive impairment, negative thoughts, social withdrawal, and physical symptoms (refer to Section 9.3.1). In addressing RO2, as illustrated in the left box in the figure 9.1 (the framework), the primary contributing factors to students' TA were identified as cultural pressures (microsystem/macrosystem factors), educational system policies and regulations (exosystem factors), the nature of the assessment platform (mesosystem factors), and mental health (individual-level factors). The interplay among these factors was recognized as crucial in the development of TA, which could be either alleviated or exacerbated by the coping strategies employed (see Section 9.4.2). For RO3 and RO4, as illustrated in the right boxes of the framework in Figure 9.1, the research investigated coping strategies used to mitigate TA, including task-focused, avoidance-focused, and emotion-focused approaches, along with seeking counselling. It was found that these strategies served to lessen the tension between individual psychological factors, particularly mental health issues, and influences from the social (macrosystem and microsystem) and educational (exosystem and mesosystem) spheres (discussed in Section 9.4.2). A detailed summary of these findings is presented in Figure 9.1 (Research Framework) and is elaborated throughout this chapter. The subsequent sections delve into RQ1 and RQ2 respectively.

Figure 9. 1 Research Framework



Note: UK: Local British, SA: Local Saudi, EU: European, EA, Eastern

9.3 How TA Differs Across Cultures

Given the diversity of definitions of TA in the literature (e.g. Speilberger, 1980; Segool et al., 2013), the various scales utilised in research, such as the TA inventory (Spielberger, 1980) and the Westside TA scale (Driscoll, 2007), as well as ambiguity regarding cultural variations in TA (Nyroos et al., 2015; Lowe, 2021c), this research synthesized data from multiple sources, namely a systematic review, a quantitative survey and qualitative interviews to identify distinctions and develop a taxonomy of TA experiences in different contexts.

9.3.1 RO1: To Define, Differentiate and Taxonomize TA Experiences in Different Contexts

To address the first research objective, TA as experienced by each group is discussed in relation to the existing literature, comparing Eastern and Western students, and local and international students, and finally providing a definition of TA experiences. This research used Spielberger's (1980) TA inventory as the predominant scale employed to measure TA in the literature.

Levels of TA among local Saudi and British students

In the quantitative study, Saudi students reported overall TA at mean level of 38.35, with M = 15.74 for emotions and M = 13.38 for worry. These values are lower than those reported in previous papers in the same context, which ranged from M = 42 to M = 46.6 (Alamri et al., 2020; Alamir & Nazir, 2022; Nazir et al., 2021). Among the local British students, the level of TA was M = 47.52 overall, with M = 20.30 for emotion and M = 16.96 for worry, again lower than in previous work (Huntley et al., 2020). All studies, including this thesis, indicate moderate levels of TA in the UK and Saudi Arabia. The previous papers in the UK and Saudi contexts focused on undergraduate students, so the variation observed in TA could potentially stem from factors such as the nature of postgraduate level in the university system or the change in assessment system, which could alleviate the TA, further elaborated in section 9.4.

Differences in levels of TA between international and local students

The analysis of the international cohort showed that European international students reported significantly higher levels of emotional TA compared to British students, and Eastern international students exhibited higher levels of TA compared to local Saudi

students. This means that the international students experienced more TA than the local students when controlling for culture (comparing local and international students from the same culture, e.g. local Saudi vs Eastern international; local British vs European international). These findings align with and confirm previous research that suggests international students may struggle more with TA (Henning et al., 2013) and justify the motivation in this study to identify why there are differences in the experiences of TA between local and international students (see 9.4).

Differences in levels of TA between Eastern and Western students

The comparison between Eastern and European students is questionable, as it is unclear whether the differences observed are due to cultural factors or the educational context. This thesis found that Eastern students, representing a collectivist culture, reported significantly lower levels of emotional aspects of the TA compared to European students, representing an individualist culture. These results are inconsistent with previous papers, which reported that Eastern students (e.g., Singaporean, Egyptian, Bangladeshi, and Chinese) demonstrated higher levels of TA compared to Western students (e.g., US, Canadian, and Finnish) (El-Zahhar & Hocevar, 1991; Klassen et al., 2009; Mazumder, 2014; Nyroos et al., 2015).

Furthermore, the findings of this research are inconsistent with a systematic review conducted by Toyama and Yamazaki (2022), which analysed 106 studies in 35 countries and reported a positive association between TA and collectivist cultures at the university level. The inconsistency of the findings with the literature may be attributed to differences in the targeted samples as the previous literature focused on undergraduate students, while this research focused on postgraduate students. However, these research findings support the cross-cultural theory that those from individualist cultures experience greater emotional arousal and inclination to anxiety than those from collectivist cultures (Lim et al., 2016). The significance of these insights is substantial, as they shed light on the considerable role that context plays in influencing students' TA. These differences are further elaborated in section 9.4.

Taxonomy of TA experiences in different contexts

The diversity of measures used to assess TA, as found in the systematic review, highlights the need for a holistic understanding of TA experiences. Therefore, this thesis

drew on three phases of research to synthesize the symptoms of TA and develop a comprehensive taxonomy, resulting in both dimensions similar to those already identified and additional dimensions encompassing physical symptoms, negative thoughts, and cognitive impairment.

Physical symptoms were identified in the quantitative study as part of the emotionality dimension of TA (Spielberger, 1980) and in the systematic review were classified as IBS symptoms (Benson & El-Zahhar, 1994), headache and vascular issues (Sarason, 1984), and respiratory issues (Benson & El-Zahhar, 1994). Furthermore, the qualitative interview data revealed additional symptoms including ear pain and a warm or feverish feeling (see section 6.6).

Negative thoughts, as identified in the quantitative study, were part of the worry dimension of TA (Spielberger, 1980), classified in the systematic review into negative perceptions of oneself (Driscoll, 2007), negative perceptions of high-stakes examinations (Driscoll, 2007), and negative perceptions of the consequences of failing to do well in the examination (Hodapp,1996).

The qualitative interviews in this study reveal key themes such as feelings of incapacity, including feeling of being trapped and burned out, and thoughts of quitting and withdrawing from the examinations, programs, and career (refer to Section 6.2 for details). These findings align with established psychological frameworks such as the Expectancy Value Theory (Eccles & Wigfield, 2020) and the Self-Determination Theory (Ryan & Deci, 2022). These theories highlight perceived competence as a key motivator of behavior. Furthermore, the findings of the qualitative interviews reflect the Control Value Theory (Pekrun, 2006), in which a perceived lack of ability is recognized as a main component of experiencing a sense of control. Although these theories offer insights into understanding the motivational impacts of perceived competence and control, this research emphasizes the emotional and practical consequences, such as the decision to quit, that these feelings can cause. It highlights the need for further exploration focused on practical interventions in educational and professional settings beyond the theoretical implications.

Cognitive impairment, as identified in the quantitative study, formed part of the worry dimension of TA (Speilberger, 1980), and was manifested in the systematic review as confusion (e.g. Sarason, 1977, 1984), forgetfulness (Driscoll, 2007), and being distracted by irrelevant thoughts before or during an examination (Spielberger, 1980), thus

affecting the capacity to focus (Benson & El-Zahhar, 1994). The qualitative interview data confirmed these symptoms and added hesitation, disordered thinking, and a sense of blurring (see 6.4).

In addition to the previously mentioned aspects of TA, this research added social withdrawal as a new dimension (see 6.3). The qualitative interview data strongly indicated that social withdrawal comprised a new significant aspect of TA, not evidenced in the systematic review or quantitative study. This research is aligned with Stober (2004), who noted social withdrawal as one of the behaviours embraced by students but conceptualised it as a coping strategy not as a symptom of TA. This is worth noting because this research conceptualises it as a symptom not as a coping strategy as it did not manifest as a defence or avoidance mechanism, as did procrastination; rather, it comprised a self-belief that emerged due to fear of the examination. Social withdrawal was observed to comprise five elements: self-blame for going out, inability to see beauty around one, being irritable towards people, avoiding friends and isolating (spending time alone) (see section 6.3). The addition of this dimension may relate to the nature of postgraduate studies, which focus on coursework and require students to work on assignments independently.

To sum up, this research has added elements to each group of symptoms in documenting TA. This is important as TA should not be measured solely based on the dimensions of worry and emotion as initially defined by Spielberger (1980), as investigated in pre-university and undergraduate educational levels, but must include other aspects as students differ in how they experience TA, and their symptoms vary. Such differences could be due to cultural or institutional factors related to postgraduate studies, as will be elaborated in section 9.4.

9.4 RQ2: Why TA and its consequences differ across cultures and educational settings?

The second research question sought to explore “why” TA differs across countries and contexts and was theoretically framed based on bioecological theory (Bronfenbrenner, 1979, 1994, 2005) and biopsychosocial theory (Lowe et al., 2008) to enhance understanding of the phenomenon of TA in cross-cultural research. This research question is demarcated into three research objectives. Each one will be discussed in detail in the following sub-sections.

9.4.1 RO2: To Investigate the Factors Influencing TA Across Cultures and Educational Contexts

As depicted in Figure 9.1 of the research framework, this study adopts a theoretical perspective that categorizes the underlying factors of the TA into four distinct groups: Macrosystem and Microsystem, the Exosystem, the Mesosystem, and Individual factors. The subsequent sections will discuss how each of these groups differentially influences the TA role for both local and international students across the two educational contexts.

9.4.1.1. Macrosystem and microsystem factors influencing TA.

The macrosystem and microsystem elements identified in the qualitative interviews are inseparable as the macrosystem encompasses cultural factors that affect the microsystem-level influences on the student (e.g., parents and employers). These factors are: (i) family and societal expectations, as supporting the literature (Alsahman et al., 2019; El-Masry, 2013; Soliman, 2014;) and suggested in qualitative interviews to be more prevalent in Eastern cultures; (ii) career expectations, which is an emergent theme in this study and evidenced, differently, in all groups (see 7.2). These two factors are discussed in the following paragraphs, along with the tension between the systematic factors that create TA.

1. Family and societal expectations

The relationship between family/teacher expectations and TA is firmly established in existing research (Brandmo et al., 2019; Celik & Yildirim, 2019; Putwain et al., 2021). For example, Putwain et al. (2021) discuss how teachers' use of fear appeals, such as emphasizing the "consequences of not doing well," can significantly influence students' anxiety levels—a theme also explored in section 7.2 under the topic of expectations. This study enhances our understanding by illustrating how cultural contexts shape students' expectations and serve as triggers for TA.

Cultural expectations influence the relationship between the student and the direct environment in terms of peers and parents, i.e., the microsystem level. In the interviews, family and social expectations were identified as a prominent aspect within Eastern cultures. The qualitative analysis showed that in the macrosystem environment, the collectivist culture fosters comparison and competition between families and peers, which translated into expectations of the students and psychological pressure to achieve high marks. In collectivist cultures, as evidenced in this research and aligned with the

literature, parents place great psychological pressure on their sons and daughters to get the highest marks as it is a matter of a family pride and status (Li & Lin, 2014; Ma et al., 2020); consequently, such cultural norms translate into family expectations, which are considered a key driver of TA for students, as supported in the qualitative interview data and literature (Alsahman et al., 2019; El-Masry, 2013; Peleg et al., 2016; Soliman, 2014; Wadi et al., 2022a, 2022b).

In addition, the interview data showed that students in a highly competitive culture, such as Saudi Arabia, tend to monitor each other's scores. Getting low marks represents a loss of social status among friends and peers in class and may even lead to bullying from peers. There is no evidence of international European or British students facing similar issues, although British students may suffer from their perfectionist parents' expectations, perfectionism being a cultural factor more attributed to Western societies (Curran & Hill, 2022). Nonetheless, the collectivist culture seems to have a greater and more pervasive effect than the individualist culture. Students from collectivist cultures, as suggested by the qualitative data, are likely to present novel culture-related symptoms – social withdrawal and avoidance of others – both during assessments and after to escape questioning about their marks and performance.

To sum up, this research has identified a tension between macrosystem (cultural) and microsystem (family/peer pressure) factors as triggers of TA. Specifically, the study suggests that culture (collectivism) and competitiveness (getting high marks) and high family expectations and peer pressure play a role in increasing TA among Saudi and Eastern international students.

2. Career expectations

As shown in the interviews, career expectations comprised a novel factor in this research, putting psychological pressure on students to meet career requirements, as evidenced in all groups (see 7.2.1). The nexus between career decision making and TA for university students and test importance and TA for high school students has previously been investigated (Berger-Gross & Kraut, 1983; Segool et al., 2014). This research extends this understanding by identifying the connection between TA and career expectations for international and local postgraduate students.

The data from the interviews indicate that excelling in assessments, which is crucial for success in a competitive job market and meeting career requirements, is a significant

factor that may contribute to the development of TA across all groups. This research suggests that the perception of the inability to perform well in assessments triggers TA, which could potentially affect career prospects in terms of hiring and promotion. While British students worry about the potential for their poor performance to affect future career progression, Saudi students also focus on their ranking with respect to each other in academic performance. In Saudi Arabia, some academic jobs are influenced by student ranking (Umm Al-Qura University, 2019; Taif University, 2019). Thus, students are under pressure not only to pass the examination but also to perform well. The Saudi requirements for high scores suit the Saudi educational system, in which learning and testing predominantly rely on memorization (Gregory & Bend, 2019) and it is possible to attain full marks. However, educational systems requiring critical analysis present a challenge in attaining high scores, leading to conflict between the Saudi workplace requirements for high marks and students' ability to provide them. The findings indicate that a mismatch between the needs of the labour market in their home country, such as high scores for certain jobs, and the educational system in the host country, characterized by critical thinking, could be a significant trigger of TA for students.

In summary, it is not only evident that career expectations trigger academic tension but also that the interplay between the macrosystem in the context of a competitive job market, the microsystem in relation to career expectations, and students' perceptions of their inability to succeed in assessments can serve as significant triggers of academic tension. Although the interviews identified concerns related to career prospects as a source of TA for all students, the quantitative findings indicated lower TA among local Saudi students. This result indicates that the harmony between the educational system and the requirements of the labour market resulted in lower TA.

9.4.1.2. Exosystem factors influencing TA

Exosystem factors are institutional aspects related to the policies and regulations in the educational system that influence TA (see section 7.3). The factors evidenced in the qualitative data included the following: (i) the cost of education for international students (see 7.3.1) and the quantity and closeness of deadlines for students in the UK (see 7.3.2), which could explain the higher TA among both local and international students in the UK; (ii) testing social science students on STEM modules and vice versa (see 7.3.3); (iii)

lack of familiarity with the assessment types, which could increase TA among all students (see 7.3.2). These factors are summarized in Table 9.1.

Table 9. 1 Exosystem factors influencing TA**.**

	Local Saudi	**Eastern international**	**European international**	**Local British**
Cost of education	Free → low TA	High → TA (due to family pressures as a lender)	High → TA (due to pressure to repay loans)	Lower than international → low TA
Testing social science students on STEM modules and vice versa	→ increased TA for all groups			
Assessment quantity and unfamiliarity	Few → low TA	Many → increased TA for all students in the UK (local/international)		

1. The cost of education

The results of this research align with previous studies suggesting that the cost of education could be one of the main factors driving students' TA (Ghasemi et al., 2017; Henning et al., 2011). TA can result from self-blame for wasting money in the case of failure or not achieving the objectives of undertaking the degree (Alkowatli et al., 2022; Rowe & Fitness, 2018). For local Saudi students, postgraduate studies are generally free (mov.edu.sa), so this is not a factor that induces TA according to qualitative data. Local British students pay fees that are lower than international students (UKCISA, nd). However, Eastern and European international students pay higher amounts for their studies in the UK, which the interviews identified as a factor contributing to greater TA among international students (UOG, Fees, 2023**).** Although it is known that the cost of education can influence all students (Alkowatli et al., 2022; Zhang, 2016), the interviews showed the cost of education having more impact on international students. This could be a justification for the quantitative findings also showing that international students experience greater TA.

Although there is a known association between the cost of education and TA, this research contributes to knowledge by showing that culture further affects the relationship between TA and the cost of education. The tension between the macrosystem (collectivist vs individualist culture) and exsosystem (cost of education) was apparent in the constraints experienced by the students related to the financial requirements of education and their capacity to pay the tuition fees. According to the interview data, European

students (from individualist cultures) take out personal loans and give up their jobs to study to get a better job with a higher income in the future (see section 7.3.1). European international students fear the uncertainty of their future job prospects and potential for having to repay their loans with no extra income or better job opportunity. These negative thoughts create TA. Eastern students (from collectivist cultures) receive family money to pay their fees, which in turn imposes the expectation of attaining the highest marks. As evidenced in the interview data, Eastern international students fear disappointing their families if they do not get better marks than their overseas peers (see 7.2.2). The international students had paid a substantial amount of money to study and there were no possibilities for them to quit, which led to a sense of burnout. Although existing studies have reported that the family in collectivist cultures play a role in magnifying students' TA (e.g., Ahmed et al., 2023; Azim et al., 2022), this research is novel in identifying the experiences of combined cultural and institutional pressures.

The concluding remark here is that the culture does not in itself engender TA; rather, the tensions between cultural expectations and the requirements of the educational system give rise to TA.

2. Testing social science students on STEM modules and STEM students on social science modules

The interviews (see section 7.3.3) aligned with previous studies suggesting that in all groups social science students reported feeling anxious about having to take numeracy-based modules as part of their social science degrees, for instance a statistics module as part of an MSc in psychology. Similarly, STEM students reported feeling anxious about being assessed on literacy-based modules as part of their science-based degrees, for instance a philosophy module as part of an MSc in engineering (González et al., 2016; Hanna & Dempster, 2009). This research supports previous literature that indicates the perception of the difficulty of assessment (Von der Embse et al., 2018) and module content (Sansgiry & Sail, 2006) contribute to TA. The definition of difficulty relates to the level of epistemological difference between certain modules in the same programme. Koskal (2011) and Trevors et al. (2017) classified academic topics based on their epistemological stance, distinguishing between literacy- and theory-based topics in which there is no single truth or model answer (e.g., philosophy) and natural science topics in which there is a single version of the truth (e.g., statistics). These

epistemological differences between modules may conflict with students' prior experiences in their educational backgrounds or specializations.

To conclude, TA can arise from the perception of the inability to cope with the learning environment (Zeidner, 2014). This research operationalized the concept of the inability to cope with the environment as the mismatch between what is required and the students' perceived capacity to meet the requirements due to educational setting. In this context, the challenge lay in modules and assessments being epistemologically different from those familiar to the students in their home country or educational backgrounds.

3. Lack of familiarity with the assessment types and proximity of deadlines

The third factor concerned the students' lack of familiarity with the assessment type and the proximity of deadlines. These two factors were not evidenced in either the systematic review or the quantitative findings but were found in the qualitative interview data. This theme aligns with previous studies showing that lack of familiarity with assessment types and the closeness of deadlines triggers TA symptoms for local students (Nihea & Chiramanee, 2014; Putwain, 2008b), and international and postgraduate students (Zhu, 2021). In all groups, the variety and strangeness of assessments led students to feeling confounded and unable to cope with the requirements. In addition, all students in the UK remarked on the number of assessments and closeness of deadlines affecting their TA (see 7.3.2). Students in the UK often complete more credits in a single academic year than in Saudi Arabia, where a Master's degree typically takes at least two years (Coneyworth et al., 2020). However, students in the Saudi educational system, which employs unseen timed examinations rather than coursework, did not report this issue. This could explain the higher levels of TA among all students in the UK.

To sum up, this research contributes to the literature by showing that assessment frequency and deadline proximity, while promoting learning, also contributes to heightened TA levels among local and international students in the UK compared to local Saudi students.

9.4.1.3. Mesosystem factors influencing TA

The mesosystem factors identified in the study as leading to TA were related to the nature of the test, as follows: (i) time-based assessment vs coursework; (ii) memorization vs critical thinking; (iii) computerised vs in-person examinations (see sections 7.4 and 7.5).

The first aspect is primarily an educational factor that could lead to TA regardless of the culture, whereas the second and third are highly triggering of TA based on the tension between the macrosystem and mesosystem in terms of expectations, requirements, and the students' perception of their ability to achieve them.

1. Time-based assessment vs coursework

The quantitative findings highlighted those time-based assessments, such as conventional examinations, were the greatest source of TA. The findings from the systematic review (Cohen et al., 2008; Gerwing et al., 2015; Kurt et al., 2014; Shermis et al., 2001; Zhang et al., 2014;), the survey and interviews all suggest that the bodily and emotional aspects of TA tend to be highest in relation to time-constrained paper-based examinations, especially those undertaken in a short timeframe, such as 1–3 hours. However, issues were experienced only for a short period of time (one or a few days before the assessment) around the examination itself and hardly at all afterwards. Coursework was a greater source of TA for Saudi students than for those in the UK (see figure 5.1). This could be due to the influence of culture, which stresses the need to attain full marks, as detailed in the Macrosystem section (Section 9.4.1.1).

Interestingly, the interviews suggested that coursework could be a trigger of worry (e.g. a "sense of blurring" and "disordered thinking") rather than emotional issues due to the length of time it took to get the results, students' uncertainty in terms of the expectations or requirements of the assessments, and the duration of psychological pressure, which lasted through the process of writing up to the time of the marks being released. This could be a reason for the higher levels of TA and mental health issues among students in the UK, where coursework is more prevalent than in Saudi Arabia. This corresponds to the findings of Campbell et al. (2022), which indicated that heightened perceived stress resulting from coursework was associated with poor mental health in the UK. Moreover, it aligns with McPherson et al.'s (2017) study, which identified that factors relating to coursework, such as students' lack of clarity about the academic requirements, led to TA. Furthermore, the research indicates the possibility that there is a connection between cognitive symptoms and assessments based on coursework. Further quantitative research is needed to investigate whether each assessment type is associated with specific symptoms.

2. Online and in-person assessment

Online learning and assessment were in force at the time of this research due to the COVID-19 pandemic (Webb, 2021). Thus, this research provides a different perspective on the differences between online and in-person assessments resulting from the shift to online learning and assessment. The systematic review did not offer conclusive results concerning the relationship between online versus face-to-face assessment and TA (e.g. Baig et al., 2018; Kolagari et al., 2018; Stowell et al., 2012), as detailed in section 4.5. Similarly in the quantitative findings, Eastern international students reported the highest TA from computer-based examinations, while the local British, local Saudi, and European international students reported the lowest TA. This discrepancy could be attributed to cultural differences based on the interviews. For collectivist students, who preferred to be part of a group of people, online examinations were viewed as stressful since the students felt isolated; for those who preferred to be alone during assessments, the online format better accommodated their needs. In Saudi Arabia, which is a competitive culture (Alatawi et al., 2020; Gazzaz et al., 2018; Kanagar et al., 2021), students prefer to avoid people in examinations, making computer-based assessment less stressful. At the same time, for those who preferred to avoid interaction with others, as evidenced among the European and British students, giving presentations tended to be a source of TA. The lack of evidence for this among Eastern students could be due to their collectivist culture, which meant they were brought up to be naturally part of a group (Almalki & Ganong, 2018; Mesquita, 2001; Triandis, 2018). Thus, online assessment could be more anxiety provoking for those from collectivist cultures than for those from individualist cultures.

To sum up, these research findings on the relationship between the assessment platform and TA shows that cultural aspects (collectivist vs individualist) or the student's personality could contribute to the relationship between assessment and TA. This is worth knowing in clarifying the role of the culture in the nexus between TA, culture, and the type of assessment.

3. Memorization vs critical thinking

The systematic review was not clear on the role of differences in assessment – memorization or critical thinking focused – in inducing TA. Several studies have highlighted the challenges Eastern Arabic students, such as Saudi learners, face at

European universities when required to demonstrate critical thinking (Al-Harbi & Troudi, 2020; Alsahafi & Shin, 2019). This research, supported by the literature, found that for Saudi (Alandejani, 2021; Al-Seghayer, 2021) and Eastern students (Ahmed & Ahmed, 2017; Kumar & Behera, 2021), moving from an educational system based on memorization, in which full marks are attainable (at high school or an undergraduate programme), to another requiring critical thinking skills (postgraduate studies in the UK or Saudi Arabia) was a source of TA (see section 7.5.3). Based on the qualitative evidence, this research shows that TA can be induced by family pressures in Eastern cultures to get full marks, which are not attainable in forms of assessment requiring critical thinking. Students brought up with memorization-based assessment were not used to having to give their own perspectives. The mismatch between the students' and families' expectations of high marks and competitiveness with an education system not conducive to such needs leads to increased TA.

9.4.2 RO3: To Identify Coping Strategies Used to Reduce TA

This research employed findings from both the quantitative survey and qualitative interviews to define the coping strategies adopted by students. These coping strategies are conceptualized as mechanisms used to alleviate tensions between the individual, societal, and educational spheres regarding expectations and the students' perceived ability to meet them. Given the tension between these three spheres, students may employ task-based, avoidance, and emotion-based strategies and seeking counselling. While these coping strategies have been discussed in separate papers (e.g., Krispenz et al., 2019; Thomas et al., 2017), this study is novel in examining cultural differences in the adoption of coping strategies and how these distinct strategies may influence the alleviation of TA experiences, as elaborated in the following paragraphs.

Task-based strategies

In this research, task-based strategies are defined as active behavioural responses used to cope with stress by focusing on examination preparation, aligned with previous literature (Folkman & Lazarus, 1985; Putwain et al., 2016; Zeidner & Saklofske, 1996). However, this research contributes to the literature in two respects: first, it demonstrates the underlying reasons for the varying prevalence of task-based coping strategies across contexts and second, it explores the (adverse) effects of task-based strategies in different contexts.

The quantitative findings indicate that approximately half of Saudi students employed task-based strategies, compared to about two out of ten local British students and one out of ten Eastern and European international students. In Saudi Arabia, three characteristics make task-based coping strategies more effective: most assessments are conventional timed examinations that allow students to prepare in advance; the materials are generally repeated year on year; assessments occur at the end of each semester. In the UK, the case is different because coursework is assigned over a longer period, typically throughout the whole semester, materials are mostly updated every year, there are many deadlines, and they are scattered along the semester timeline. In the Saudi context, task-based coping strategies are perceived as effective and can create a sense of "relaxation" due to the highly structured education system, with its consistent assessment patterns and topics covered each year (see section 8.3.3). However, this type of strategy, which relies on planning, increases levels of TA when students are confronted with even minimal changes in assessments or timelines. Therefore, for those who rely predominantly on planning, studying in the UK may induce relatively higher TA. Additionally, some individuals who adopt this strategy may not achieve a sufficient level of psychological preparedness and may feel limited in their perception of environmental control, as they lack confidence in their plans or believe that the external environment may not align with their plans. This research supports the adverse implications of task-based strategies consistent with the works of Arana and Furlan (2016) and Shimave et al. (2020), who reported an increase in worry associated with task-based coping strategies.

To sum up, this study contributes to knowledge by highlighting that coping strategies are also influenced by the education system. Although task-based strategies are commonly perceived as effective, excessive reliance on them can make students vulnerable to anxiety in the case of any changes in the assessment, deadline, or topics.

Avoidance/counterproductive strategies

In this study, avoidance strategies are conceptualized in this study as methods employed to escape from TA, exhibited through behaviors such as overeating, drinking, or procrastination. These behaviors distract individuals from activities that could aid their personal and professional success (Hess & Copeland, 2001; Sirois & Kitnet et al., 2015; Xiao, 2013; Zhou & Kam, 2017). As detailed in the qualitative findings (Section 6.2.2, p.147), these strategies relate to the performance avoidance construct established within

achievement goal theory (Elliot & McGregor, 2001; Elliot et al., 2011), similar to the phenomena described under the heading "Preoccupation with the Negative Consequences of Failing." This connection indicates that individuals use avoidance methods not just as coping mechanisms, but as strategic responses aligned with specific achievement-oriented goals. While these strategies may seem protective, they can reinforce the fear of failure, revealing a contradiction in strategies aimed at improving achievement.

Achievement-goal theorists argue that goals can be experienced in different ways, involving mastery versus performance and approach versus avoidance (Elliot & McGregor, 2001; Elliot et al., 2011). In this study, one of the emergent themes was an avoidance response when thinking about tests. The insights from this research align with achievement goal theory and also enhance our understanding by illustrating specific, contextual behavioral responses. By connecting these avoidance behaviors to well-established theoretical frameworks, this research provides a better understanding of how avoidance mechanisms interact with broader motivational frameworks, such as achievement goal theory (Elliot & McGregor, 2001). This understanding is crucial for developing interventions that address not just the manifestations of avoidance but also its underlying connections to TA.

The quantitative findings indicated that procrastination was significantly higher among the Western students (European and British) than the Eastern students (Saudi and Eastern), aligning with prior research (Kalssen et al., 2010; Yang, 2021). The quantitative findings, supported by the qualitative interview data (see 8.2), suggest that procrastination could be influenced by cultural and educational factors and gender. The cultural factors include the greater perfectionism and focus on personal goals in Western societies, leading to reluctance to start doing the work (Kurtovic et al., 2019; Smith et al., 2016). In contrast, Eastern, religious cultures believe that only God is perfect and do not feel shame about starting with less preparation, this argument is also evidenced by Geovani and Aditya (2021). In addition, the prevalence of coursework in the UK education system gives rise to more opportunities for procrastination, as assessment spans the entire semester. Women tend to indulge in shopping, while men engage in sports, irrespective of the contextual setting. Eastern students find pleasure in consuming sugary foods, while Western students lean towards drinking alcohol. This expands on the previous literature, as most studies have only considered procrastination as a maladaptive

coping strategy (Steel, 2007; Tarman & Sari, 2021), or have focused on entertainment and shopping (Amponsah et al., 2020; Salam et al., 2019), not food and drink consumption.

Emotion-based strategies

Emotion-based strategies, as defined in this research and previous works, focus on one's ability to examine and manage emotive reactions (Folkman et al.,1986; Fuente et al., 2014; Putwain et al., 2016;). The quantitative findings (see Appendix C.16) revealed that emotional techniques were used in relatively similar proportions across contexts, but the methods varied depending on the context. While yoga and talking to others prevail in the West, praying and talking to the self are prevail in the East.

The qualitative interview data revealed that in Saudi Arabia, despite it being a collectivist culture, there was a tendency to avoid discussing TA with others so as not to appear weak and also the students engaged in self-talk, as reported by Eastern students. This finding aligns with prior research on the role played by stigma in students avoiding counselling for anxiety in collectivist societies (Chen et al., 2020; Tuliao, 2014). The possible explanation for this is that the Saudi culture is both competitive and collectivist (Alatawi et al., 2020; Eum, 2009; Gazzaz et al., 2018; Hofestede, nd; Kanagar et al., 2021), which contributes to the presence of stigma and a less supportive environment for students to openly express their pain to others. This research introduces a novel suggestion that even with anxiety, there is a tendency to avoid discussing it with others.

Yoga was used to relieve anxiety more by the British and European students, whereas the Saudi and Eastern students opted for spiritual coping strategies, such as praying, i.e. talking to God, a method proposed to be effective in the literature (Alshloul & Bdair, 2020; Khalsa et al., 2012). This finding extends and confirms the studies of Turner and Llamas (2017) and Moreno and Cardemil (2013), which reported that Latino students find solace in talking to God as a replacement for seeking professional counselling. Similar evidence was found in this research, in which the Saudi and Eastern students were highly unlikely to seek professional counselling to alleviate the effects of TA.

To sum up, the use of emotional coping strategies was reported in all groups, but the types differed across cultures.

Seeking professional help: Counselling

The final coping strategy was seeking help from professionals, specifically through counselling services. Counselling is widely recognized in the literature as an effective technique for managing TA symptoms and reducing their impact on academic performance (Altundag & Bulut, 2019; Novella et al., 2022; Oluwaferanmi & Uzun, 2022). Despite its apparent benefits, the quantitative findings (see Appendix C.16) revealed that only European and British students used such services; none of the Saudi or Eastern students did so. The qualitative data (see section 8.4) attributed this to cultural reasons, such that the Saudi and Eastern students viewed seeking professional help as a sign of weakness, but also there was a lack of awareness of it as a source of help, consistent with prior research (Ning et al., 2022).

This research focused on the UK and Saudi contexts and contributes to the body of literature by highlighting that in Eastern communities, seeking counselling is viewed as an indication of madness or being under the evil eye, making individuals vulnerable to bullying within their society. Consequently, they tended to avoid counselling due to the fear of judgment by society, referred to as stigma in the literature (Chen et al., 2020; Turner & Llamas, 2017). Saudi students proposed ways of protecting students' privacy to enable them to seek counselling and suggesting that counsellors might take a proactive role in identifying students experiencing TA, rather than relying solely on students to seek help (see section 8.4).

In summary, the selection of coping strategies by students in this study was influenced not only by the culture (macrosystem) but also by the education system. Specific coping strategies were characteristic of the Saudi context, such as preparation and planning, while relaxation techniques were more common among the British, European, and Eastern students in the UK. Counselling services were only accessed by British and European students and the use of medication was limited to the same groups. Spiritual coping mechanisms were observed among the Saudi and Eastern students. This research contributes to knowledge by demonstrating the interaction between the culture, education system, and coping strategies adopted by the local and international students in Saudi Arabia and the UK.

9.5 Contribution to Knowledge

The application of Bronfenbrenner's (1979, 1994, 2005) bioecological theory of human development in conjunction with the biopsychological framework proposed by Lowe et al. (2008) within the context of this study represents a significant theoretical contribution in contextualizing and advancing understanding of TA. The following sub-sections present the contributions related to the bioecological and biopsychosocial models and the findings of this mixed-methods study.

9.5.1 Development of a New Theoretical Lens to Understand the Development of TA Among Postgraduate Students in Different Cultures

Bioecological theory was developed to clarify child development influenced predominantly by biological factors, parents, schools, communities, and institutions (Bronfenbrenner, 1979, 1994, 2005). These factors are categorized into biological, microsystem, mesosystem, exsosystem, and macrosystem dimensions. However, applying this theory to the context of this research presents two primary challenges: the complexities encountered by the sojourn of students moving from one country to another or from undergraduate to postgraduate studies and TA as a psychological challenge in the transition. To align bioecological theory within this research context, it was integrated with biopsychosocial theory, which emphasizes the significance of biological, psychological, and social factors in understanding TA (Lowe et al., 2008). This combination offers a unique theoretical lens to comprehend TA among graduate students in cross-cultural research. Through this perspective, this research highlights that in the domain of cultural research focusing on TA, the layers of influence do not merely encapsulate one another as suggested in the original theory (Bronfenbrenner, 1979, 1994, 2005) (see left circle, Figure 9.2; Synthesizing the Literature-Based Factors in the Development of TA in Cross-Cultural Research Based on the Bioecological and Biopsychosocial Models, as Proposed by the Researcher in the Literature Review Chapter 2; also Section 2.4). Rather, they interact dynamically, generating zones of tension and harmony, as depicted in the right circle, Figure 9.2. The interactions between these zones contribute to the development of TA.

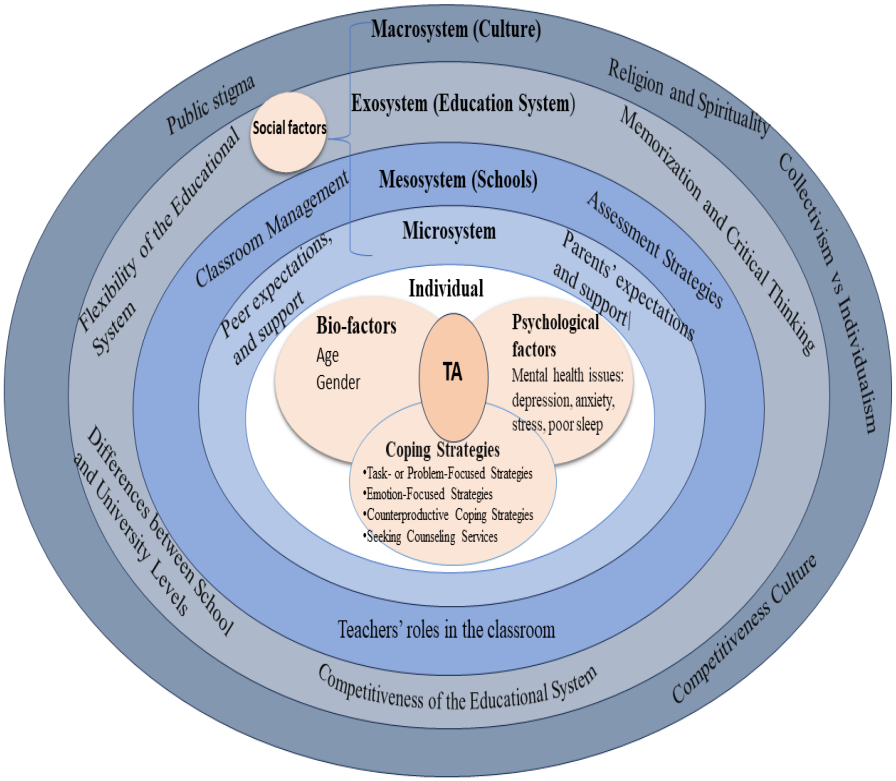
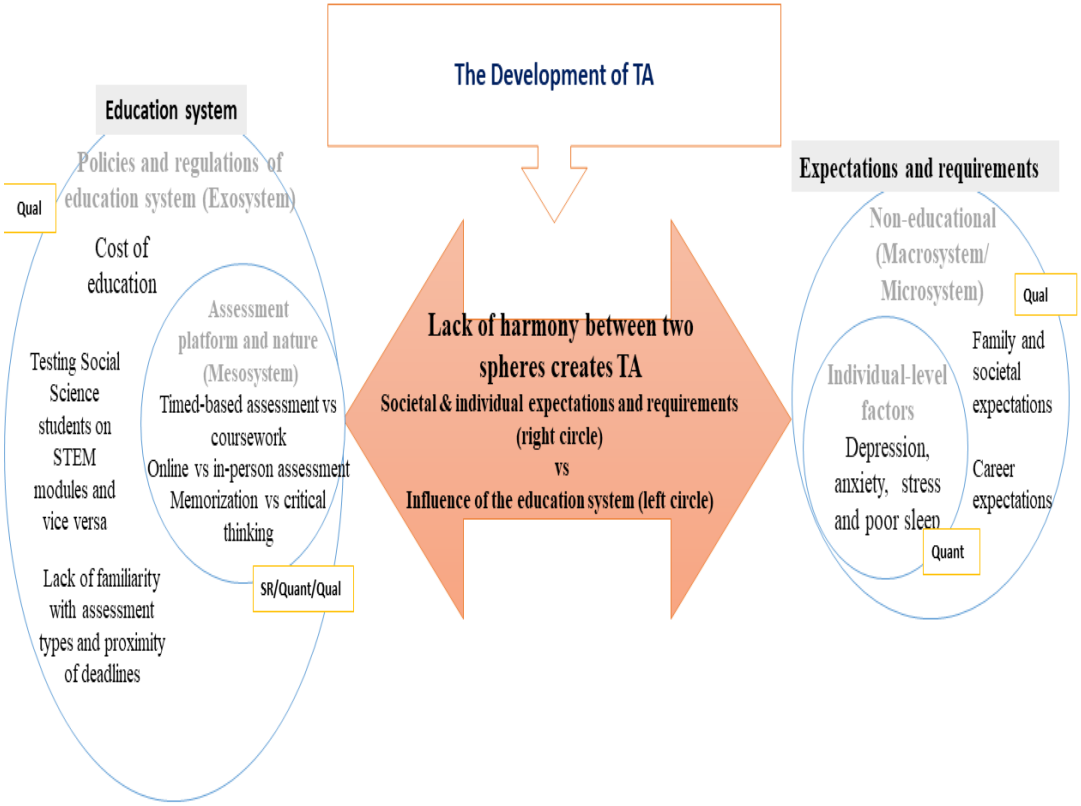
Empirical evidence supports this argument, as detailed in RQ2 (see 9.4.1). While biological, social, and psychological factors can individually explain variations in TA, it is the interplay between these and the exosystem and mesosystem that predominantly

drives TA. For instance, collectivist cultures foster an environment of comparison and competition among families and peers (Li & Lin, 2014; Ma et al., 2020), raising expectations of students and inducing profound psychological pressure to achieve top grades. In educational contexts that value critical thinking, like the UK (Al-Harbi & Troudi, 2020; Alsahafi & Shin, 2019), meeting such high standards can be challenging, if not impossible. This can give rise to high levels of TA among Saudi and Eastern students in the UK, stemming from the disconnect between cultural expectations to get full marks and the requirements of the educational system. Furthermore, it is not just these spheres of influence that matter. The alignment between the demands and expectations of the students' culture, their individual educational needs, and the host country's educational system characteristics crucially influence TA levels. For example, when an educational system like that in Saudi Arabia (Gregory & Bend, 2019) primarily depends on rote learning and conventional exams for instruction and evaluation, TA levels reportedly diminish as the full mark is achievable, as observed among local Saudi students. In contrast, being in the UK could exacerbate their TA due to the coursework approach, thus affecting their academic performance (for further examples of these tensions, see 9.4.1).

In conclusion, this research enhances the fields by reconceptualizing the influences on TA. It introduces two crucial dimensions of tension: societal expectations and the educational environment, which either conflict or harmonize, as depicted in Figure 9.2. This gives rise to the following key message from this research:

Key message 1: There are both tensions and interactions in cross-cultural research

Figure 9. 2 Reconceptualizing the Influences of Various Factors on TA

What is deduced from the literature (Literature review chapter)	What is found from the data (Contribution)
	
Synthesizing the Literature-Based Factors in the Development of TA in Cross-Cultural Research Based on the Bioecological and Biopsychosocial Models, as Proposed by the Researcher in the Literature Review Chapter 2.	*Tensions and Interactions in development of the TA in cross-cultural research, developed by the researcher after the analysis*

9.5.2 Extending the Active Agent Perspective in Bioecological Theory

Bronfenbrenner's foundational works have provided significant insights into child development, where actions are perceived as passive and framed mainly by uncontrollable factors such as biological, environmental, and contextual factors (Bronfenbrenner, 1979, 1994). This research context is different as it focuses on mature students whose actions can shape part of the tensions between circles of influence. To provide a holistic understanding of TA, this research must also account for the individual's internal coping mechanisms. This expanded perspective promotes a more comprehensive view of students as not merely products of their environment but also as proactive agents in shaping it (Bronfenbrenner, 2005; Nieminen et al., 2022), employing a range of strategies to navigate the challenges of academic evaluations and to ameliorate the impact of symptoms of TA on their academic performance.

In addition, the coping strategies employed by individuals are not exclusively influenced by cultural factors alone (e.g., prayer vs yoga, seeking support from family vs self-reflection, procrastination vs task-oriented approaches), but also by the education system, as reflected in the assessment system itself; this can shape the effectiveness and adoption of different coping mechanisms. For instance, in Saudi Arabia, three characteristics enhance the efficacy of task-based coping strategies: the nature of the test, exemplified by conventional timed examinations that allow students to prepare in advance, and the test timing, characterized by end-of-semester assessments (see section 8.2, 8.3, 8.4 and 9.4.2)

In summary, as summarized in table 9.2 below, using this expanded framework to comprehend the active agency of students, this study identified that individuals could exhibit proactive tendencies as evidenced by their coping strategies. However, the research also demonstrates that these coping strategies are primarily moulded by bioecological factors rather than the individual's sole discretion, which is termed post-activism in this thesis. Hence:

Key message 2: Human psychological aspects (i.e., TA) are not only affected by the external environment but also individuals' decisions and actions (i.e., coping strategies), which could be controlled by the person or shaped by the environment.

Table 9. 2 Extending the Active Agent Perspective in Bioecological Theory

What is known	Contribution
• The person is passive (Bronfenbrenner, 1979, 1994) • The person is active (Bronfenbrenner, 2005)	"Post" activism: It seems the person has the discretion to adopt coping strategies to alleviate TA, but in reality, the education system and culture shape these coping strategies, as detailed in 9.3.2

9.5.3 Extending the Intriguing Dynamics of Sojourner TA

The phenomenon of TA can be attributed to the fact that graduate students construct their sojourns based on their undergraduate experiences, solidifying certain values, perceptions, and expectations within their psycho-social realms. Transitioning from undergraduate/graduate to post-graduate environments and shifting from local to international contexts can challenge these established preconceptions, culminating in forms of anxiety – specifically TA, as operationalized in this study.

The bioecological model traditionally posits that human development is influenced by concentric layers within a single environment. However, this model has been critiqued for its limited capacity to shed light on the impact of environmental transitions, such as sojourns, on individual development (Elliot, 2016a, 2016b). A salient dimension of such transitions is the phenomenon termed "sojourner stress", which arises from the challenges of adapting to a novel cultural context. While the stress associated with adapting to unfamiliar environments has been previously acknowledged (Elliot, 2016a, 2016b), this research makes a novel contribution by linking it to TA, underlining how shifts in academic environments across diverse cultural or educational landscapes can exacerbate test-related stressors.

The enhanced bioecological model, as presented in this study, seeks to capture not only the domains influencing human development but also the potential tensions arising from them. Such tensions can be especially pronounced when individuals transition within the educational framework of a single country, such as local British and Saudi students (e.g. from high school to university) or between countries (e.g. moving from Saudi Arabia to study in the UK). For example, a student transitioning from a Saudi high school, where there will likely be an emphasis on rote memorization, to a UK university setting that prioritizes critical thinking, might experience amplified TA. This heightened anxiety is

not solely attributable to the student's lack of familiarity with the new geographical context but is also deeply intertwined with the academic and pedagogical shifts that students encounter, as reported by previous studies (e.g., Dyal & Chan, 1985; Elliot et al., 2016a), which have suggested that environmental changes resulting from sojourn abroad can have psychological implications. Hence:

Key message 3: TA does not relate solely to movement from one culture to another but also to the pedagogical shift.

9.5.4 Developing a Model to Understand the Intertwined Relations Among TA, the Education System and Mental Health

There is ongoing debate regarding the directional influence between TA and mental health. The literature contemplates influences from TA to mental health (Tahoon, 2021) and from mental health to TA (Onyeizugbo, 2010). Putwain et al. (2021) found that TA exhibited a bidirectional positive relationship with an increased subsequent risk of developing anxiety and depression, which in turn showed a bidirectional negative association with subsequent school-related well-being. This study advances understanding of the relationship between TA and mental health by incorporating the educational system as a contributing factor. The research highlights a reciprocal relationship between TA, the educational system (encompassing the mesosystem and exosystem), and mental health concerns. The findings underscore that each component intrinsically interacts with and affects the others, potentially forming a cyclical feedback loop. The reciprocal relationship between TA, mental health, and the education system emphasizes the intricate interaction between psychological well-being and academic success, forming the basis for proactive interventions to improve educational outcomes. By understanding this dynamic, stakeholders can design systems that support both the academic and emotional needs of students, fostering holistic growth in the educational environment.

This research extends the current understanding of TA by incorporating social withdrawal as a novel dimension, as detailed in section 6.3. Traditionally, TA has been associated primarily with maladaptive emotions like worry and anxiety, as well as behaviors such as procrastination, which are commonly linked to a perceived lack of control. However, the qualitative interviews conducted for this thesis highlight social withdrawal as a critical, yet previously unexplored, aspect of TA. The findings suggest that for students, particularly those from international backgrounds, the experience of lacking control can manifest not only in emotional distress and avoidance behaviors but

also in withdrawing from social interactions. This dimension of social withdrawal emerges as particularly significant, as it was not evident in either the systematic review or the quantitative components of this study. By identifying and documenting this new dimension, the research contributes a deeper, more comprehensive view of how TA affects students, offering a broader framework for educational and psychological interventions aimed at mitigating its impact. This inclusion underscores the complexity of TA and the multifaceted responses it can elicit, which now include the social behaviors of students facing high pressures and expectations.

Although Stober (2004) acknowledge social withdrawal as a behaviour exhibited by students, it was construed as a coping strategy rather than a symptom of TA. This study, however, reinterprets social withdrawal not as a defence mechanism or avoidance strategy, akin to procrastination, but rather as a manifestation of self-doubt stemming from the fear associated with impending tests. This dimension may have manifested due to the postgraduate educational setting, which tends to emphasize coursework and requires students to engage in independent work.

The qualitative analysis showed that TA could translate into depression and anxiety, specifically in relation to coursework assessment. Students who suffered from pressure over the long term due to coursework started feeling depressed, describing a "black tunnel" and lack of interest in going out with people. The challenge is that coursework presents long-term and enduring pressure. However, there is no evidence from the survey to support this claim. Nonetheless, this research supports prior work, including Levecque et al.'s (2017) study, Nature's (2019)[1] and PTES (2019)[2] world-wide survey, finding that one in three postgraduate students in Europe experience psychological distress and develop symptoms of psychiatric disorders, such as anxiety and depression, during their studies, which is significantly higher than undergraduate students facing more conventional exams. This research is also in line with Brooke et al. (2020) and Mionk and Mahmood (2007), who indicated that coursework increases the unhappiness and stress of postgraduate students.

[1] https://www.nature.com/articles/d41586-019-03459-7

[2] Postgraduate Taught Experience Survey, HEA & HEPI (2019). https://s3.eu-west-2.amazonaws.com/assets.creode.advancehe-document-manager/documents/advance-he/PTES-2019_1573558819.pdf

On the matter of stress, the qualitative data from the interviews provided insights into the potential mental repercussions of TA-induced worry. Such worry can result in overthinking. While some students address this by engaging in structured planning, as evidenced in the Saudi context, the imposition of numerous and rigid deadlines can hinder the effectiveness of their adaptive strategies. As conveyed by the interviewees, such circumstances elicit feelings of being overwhelmed, described metaphorically as "running" and experiencing heightened "stress", these findings resonate with previous research undertaken by Putwain (2008b) with KS4 students in the UK and Denovan and Macaskill (2013) with university students, both of which reported that concurrent coursework deadlines induce stress. This research extends this understanding to a postgraduate cohort.

In terms of sleep quality, the interviews indicated a correlation between TA and patterns of worry and overthinking, which can detrimentally affect sleep, especially preceding assessments. Nevertheless, more pronounced sleep disturbances stemming from significant personal challenges, such as the death of a family member, were more consistently linked to TA of an emotional nature. This study innovatively offers a comprehensive perspective on the interrelationship between sleep quality and TA.

In conclusion, this research contributes to the literature by shedding light on the complex interplay between TA, mental health concerns, and the educational system. However, why various elements of the educational system affect mental health and TA in distinct ways requires deeper exploration.

Key message 4: There is a reciprocal relationship between TA, the education system, and mental health issues.

9.6 Practical Implications

This thesis has several implications for students, family members, educators, counsellors, educational institutions, and policymakers in facilitating understanding of students' experiences of TA, influencing factors, and its impacts.

9.6.1 Implications for the Collectivist Context

Combating competitiveness and the culture of high expectations

This research found that cultural and societal expectations influenced students' TA. Unlike Western societies, which are predominantly individualist and tend not to compare individuals' behaviours and accomplishments, the Saudi culture is collectivist, as are

other Eastern cultures, and frequently engenders a climate of social comparison, leading students to compete over examination grades. Furthermore, in some academic sectors, the Saudi labour market recruits' employees based on their performance in assessments (Taif University, 2019; Umm Al-Qura University, 2019). These conditions increase the psychological pressure on students as they must not only pass their examinations but strive for the maximum attainable scores.

Hence it is necessary to take steps to combat competitiveness and the culture of high expectations. To do so, this study recommends that Saudi and Eastern universities prioritize investment in awareness programmes that address TA, for example holding parents' symposiums and workshops on TA led by counselling psychologists or educators to educate parents about the adverse effects of psychological pressure on their children. Moreover, universities in Saudi Arabia ought not to reveal student rankings as this reinforces negative and unhealthy competitive norms within the education system.

9.6.2 Implications for Employers

Career expectations represents an additional dimension that triggers TA among students in both the UK and Saudi Arabia. Employers should enlighten employers about the need to consider holistic recruitment criteria. Formal education represents only one facet and differences in marks could stem from a variety of factors. Although authentic assessments in the UK and Saudi Arabia aim to ensure that individuals' abilities in real-world situations are evaluated, bridging the gap between theory and practice, there remains an over-reliance on grades. Hence, there should be a balance in focus between university assessments and real-world work.

9.6.3 Implications for UK Policymakers

While the culture of social comparison in collectivist countries might exacerbate TA, the structure and format of the UK educational system can also unintentionally induce stress. Although both local and international students in the UK pay tuition fees, both Saudi and British students according to interview data are exempt from the TA caused by educational costs compared to international students, who may grapple with TA due to the substantial financial implications. Although Eastern students typically rely on financial support from family, whereas European students tend to take out bank loans. Both groups can experience TA if they risk failing to meet their objectives. The

recommendation here is for UK policymakers to make universities in the UK a student-friendly environment.

A potential remedy would be to have financial institutions provide insurance on default repayments. This would come into effect should a student fail to secure employment after completing their degree, thereby alleviating anxiety, much like the programme supporting domestic students in the UK (SAAS,2023). Also, while UK universities give students the opportunity to work and participate in teaching on campus such as Careers, Employability and Opportunity at UOG, it is important to increase the opportunities for on-campus employment with minimum hours to achieve a balance between work and study and increase scholarship. Policymakers can also engage with university staff and students in open discussions about the cost of education and its impacts on students' lives, mental health, and academic performance, gathering different perspectives on how to mitigate this issue.

9.6.4 Implications for Universities

There are two issues in the education system that are perceived in this research to increase the level of TA for students. These are related to programme design in terms of including STEM modules in social science programmes (and vice versa) in Saudi Arabia and the UK and the type, variety, and number of assessments each semester in the UK.

Integrating STEM modules in social science programmes (and vice versa) can induce TA. Thus, social science students may experience anxiety when STEM subjects, such as mathematics or statistics, are included in their courses and STEM students may equally face stress when confronted with theoretical modules, such as management. While the crossover approach can be advantageous, the modules might be better delivered as elective components with reduced weight or credit, or entirely unmarked (audited), or based on attendance. Thus, students could gain the required knowledge of these subjects while maintaining their mental health.

The variety and number of assessments in the UK system could be construed as beneficial as they address diverse learning outcomes. However, they may also heighten TA owing to students' lack of familiarity with some assessment types and the pressure of multiple assessments. The Saudi Arabian context, in which most assessments are in the form of traditional examinations and there are fewer deadlines, might be less distressing for

students than the UK system. While diversity in assessment can be beneficial to an extent, it is necessary to evaluate the risk of exacerbating TA. Conducting some low-stakes assessments throughout the semester instead of having multiple high-stakes assessments with hard deadlines would allow students to attend lectures and plan for assessments under considerably less stress. They would also have greater freedom to engage in other activities, such as sports, which could aid in lowering TA. Furthermore, the design of inclusive and authentic assessment serves to augment meaningful evaluation and cultivate a conducive learning environment, subsequently alleviating student anxiety (Evans et al., 2018; Tai et al., 2021).

The type of assessments plays a role in explaining TA for students. Online assessments can be stressful for some (international) students, inducing feelings of loneliness and isolation, as well as potentially leading to distraction and suffering from technical issues. Universities do arrange workshops and courses to help students engage in online classes and examinations, but an alternative way of addressing this would be to give students the option of taking the assessment online or on campus, thus mitigating the negative impacts of personal and cultural factors.

Similar to online assessment, assessment through coursework is a source of TA for international students because they are not familiar with the requirements and assessment criteria. It should not be assumed that coursework inherently generates lower TA than conventional examinations. The ease of measuring and reporting TA arising from conventional examinations may be an obstacle to recognizing the potential negative impact of assessment through coursework. In addition to offering training and workshops on academic writing and critical thinking, such as the Academic Writing Skills Programme at UOG, universities could provide online resources and induction guides on the nature of assessment and evaluation criteria and aspects such as critical thinking and experiential learning.

The findings regarding coping strategies have significant implications for educational systems, cultural organizations, and psychological counselling services. In terms of the educational system, it has been demonstrated that the diversity of assessment types and students' lack of familiarity with them impairs their ability to plan, which can lead to procrastination as a maladaptive coping strategy. The implication here is that universities

should either reduce the range of assessments or provide training for students in the different types. Moreover, universities need to be aware of the various coping strategies students may employ and seek to encourage those that will be of benefit. Some strategies may be effective in certain educational systems but not in others. For instance, active coping strategies such as planning and memorization, which are effective in the Saudi system, may not work in the UK system. It might be beneficial to encourage students to engage in more effective strategies, such as Elaboration. Rather than simply memorizing, this involves making connections through description and explanation, either alone or with a partner (Sumeracki et al., 2023)

Concerning cultural organizations, this research has identified prayer as a valuable means of fostering resilience and capacity in students. Therefore, it would be beneficial to engage cultural organizations such as mosques and churches to provide spiritual support and instil confidence in students during assessment periods. In addition, for some students, yoga and meditation have been shown to be beneficial and there is a valuable role for universities and community centres in promoting these practices. Psychologists and counsellors need to take a more proactive role in increasing knowledge and awareness among students of the significance of TA, its symptoms, effective coping strategies, and the help available from psychological counselling services. In advocating counselling, they need to consider that many students in Eastern societies hesitate to seek help due to social barriers and fear of stigma. Concerning coping strategies, they need to consider the myriad factors that influence the selection of such strategies, including personality traits and biological, psychological, and contextual aspects. For instance, as identified in this research, those struggling with TA should not rely solely on meticulous planning as any deviation from the plan can exacerbate their TA. Rather, students should be trained in strategies that foster resilience, for example through workshops focused on practical techniques, such as the two-plan strategy in which a main strategy is accompanied by a backup plan that can be used in case the primary strategy fails or unexpected obstacles arise, as well as time management, which is a transferable skill enhancing employability (Tripathy, 2020). In addition, counsellors should also prioritize academic buoyancy when developing strategies to support students with TA through emotion regulation, self-confidence, and strong preparation (Putwain et al., 2023). These academic buoyancy-building strategies reduce TA and aid memory, enabling a quick

recovery from academic setbacks. Strengthening these skills can significantly improve students' capacity to bounce back from testing challenges.

9.7 Research Limitations and Areas for Improvement

As is the case with all research, this study has its limitations and there are several methodological and theoretical areas for improvement.

9.7.1 Methodological Limitations

The methodological limitations are related to the nature of the inquiry methods used in this research. The quantitative aspect of the study was useful in yielding significant findings, but the samples were not equal in size. There were fewer European students and having more might have yielded additional comments on the open-ended questions. The British and international students were more representative of the north of the UK, with limited representation from the south due to location of the research and accessibility to participants. A larger sample from across the UK could better inform understanding of both international and local students and reveal unconsidered factors. The cost of living, for instance, was not raised in this study, but it might be in London, which is much more expensive than the north. In addition, this research was conducted prior to the cost-of-living crisis in the UK, which could play a role now in students' TA (Russell Group Students' Unions, 2023).

This study focused on postgraduate students, with no focus on undergraduate programmes. Although considering both academic levels might have provided additional breadth of evidence, it could constrain the depth of insights in each stage. Despite being limited to locals in the UK and Saudi Arabia, alongside Eastern and European international participants within the UK context, this study can contribute to understanding of TA experiences in these two distinct educational and cultural settings.

In the systematic review, a limitation is the restriction to papers published between 2000 and 2019. Incorporating studies published after 2019 would significantly enhance and refine the understanding of TA.

Regarding the qualitative aspect of the research, the cases represented different categories well, but there was a lack of sectoral representation, such as medical students. Such diversity would have been helpful in deriving generic evidence but reduced the potential to gain a detailed view, for example of a single sector such as education. There may well be systemic differences between fields in the assessment types (Jessopa & Maleckar, 2016) and these likely affect levels of TA. The European students were only representative of Western Europe, as there were no students from Eastern Europe. It is impossible to have all nationalities in a single study, but there is scope for attaining a deeper understanding of the role of cultural differences in TA through further research.

The use of vignettes is also considered a limitation identified in this research, which may include leading questions that unintentionally influence participants' responses. This issue arises from the vignette design, where participants are asked to reflect from a specific character's perspective. While vignettes effectively engage participants and elicit detailed responses, they may also bias their reflections. For example, a sentence such as "She is suffering from being isolated from family and friends" could lead participants. To address this limitation, this study supplements the interview research with the vignette methodology. We start with direct questions about participants' experiences with TA, such as 'What are the triggers of test anxiety for you? (Explain how and why),' to reflect their personal experiences with TA. Then, we provide the vignette to elicit their responses, validate and enhance the insights obtained, and offer more balanced and detailed data. Although this approach does not eliminate bias, it minimizes it. Additionally, within the analysis, we specify the source of each quote to provide clarity on its context.

9.7.2 Theoretical Limitation

The theoretical areas for improvement are related to the use of the bioecological and biopsychosocial theories as a generic framework for guiding this research process. Although the framework was useful and usable, others could potentially suggest different results and perspectives. This study was further bounded by the interpretive epistemological stance in terms of understanding reality. Cognitive or culture-based models might shed light on different aspects of TA. For example, the cognitive model can provide insight into the psychological mechanisms underpinning TA such as individual beliefs and thoughts about one's academic abilities influence the intensity and

manifestation of TA in testing situations (Segool et al., 2014). Other frameworks, such as the Expectancy Value Theory (Eccles & Wigfield, 2020) and the Self-Determination Theory (Ryan & Deci, 2022), highlight perceived competence as a key motivator of behaviours could offer insights into understanding the motivational impacts of perceived competence on TA. Furthermore, the findings could be represented by existing motivational theories such as intrinsic and extrinsic motivation (Ryan & Deci, 2020) and the achievement goal framework (Elliot & McGregor, 2001). Incorporating these theories would have demonstrated a more comprehensive understanding of how they align with and support the study's findings on beliefs and perceptions, thus enriching the overall analysis.

9.8 Future Research

Several areas have been highlighted in this study that would be interesting for future research, which are detailed below.

9.8.1 TA symptoms Across Cultures and Contexts

This research used Spielberger's (198) taxonomy, the test anxiety inventory (TAI), which distinguishes between emotion and worry. However, the qualitative findings showed that the categories reflecting TA are more refined than this dichotomous framing, comprising negative thoughts, cognitive impairment, physical symptoms, and social withdrawal. Thus, it is necessary to translate these findings regarding TA symptomology into scales and test their validity by comparing experiences across different contexts. In addition, there is evidence in this research that in some educational settings, factors such as assessment types would increase certain symptoms, for example time-based exams are more associated with physical symptoms, while coursework is associated with more cognitive aspects. Therefore, it would be beneficial to examine these research findings in different contexts to enhance the validity of the findings across cultures.

9.8.2 Social Factors as Motivators and Symptoms of TA

The qualitative data indicated that social withdrawal is a new and significant aspect of TA not captured in the systematic review or quantitative survey due to the absence of specialized scale items for its assessment. Further research could integrate social withdrawal into TA scales and test the validity and prevalence among students. Furthermore, the qualitative study also found that social factors play a direct role and

interact with biological and psychological factors, thereby influencing TA. Thus, future quantitative investigation is needed to examine social elements as both motivators and symptoms of TA, exploring the impact of interactions between factors on TA, as well as the role of mediating factors, such as resilience or transition stress, which may influence such interactions.

9.8.3 The Effectiveness of Using Coping Strategies Among Religious Societies

Religious students make recourse to spiritual strategies to receive comfort and power, rather than employing strategies such as meditation, psychological counselling, or medication. However, it is not possible to draw any conclusions concerning this as there were very few religious participants, so this strategy was scarcely reported. Nonetheless, a question that might be asked is whether religiosity reduces TA in certain societies. The literature review indicates that religious and spiritual practices contribute to the reduction of mental health disorders (Sattar et al., 2022). A hypothesis based on the evidence in this study is that Saudi students experiencing less TA and Eastern international students experiencing more might be because they are influenced by the Western culture and have lower confidence in their ability to employ spiritual strategies. Certainly, studying culture in the Middle East should not be framed without considering the role of religion. This study has touched upon this aspect, providing a potential avenue for further research into the interplay between religion and TA.

9.8.4 The role of the identity and TA

This study explored the impact of cultural norms and values on TA but did not investigate the role of identity. Identity refers to a sense of self and belonging, which can offer a different perspective for understanding these dynamics in TA. Social Identity Theory suggests that individuals establish part of their self-concept based on their interactions with social groups (Tajfel & Turner, 1970). The study conducted by Haslam et al. (2009) shows that strong identification with social groups can either help to reduce stress or increase it, depending on the context and features of the group. For instance, studies conducted by Alharbi & Smith (2018), Du et al. (2024), and Sharma & Sharma (2010) reveal the conflicting impact of social identity on psychological well-being. They found that a strong ethnic identity can provide a sense of community and support, but it can also lead to increased anxiety and stress in certain environments. This raises a question

for future research: Could the concept of 'identity' provide a more comprehensive or effective framework than 'culture' for evaluating the causes and symptoms of TA?

9.9 Conclusion

In conclusion, this thesis has undertaken a comprehensive investigation of TA as experienced by postgraduate students through a mixed-methods study conducted within the field of cross-cultural research. The primary aim of this research has been to examine the variations in experiences of TA and the underlying factors contributing to these experiences among local British, local Saudi, and Eastern and European international students studying in the UK.

The study reveals a spectrum of levels of TA, with Saudi students exhibiting the lowest levels, and local British and international students in the UK demonstrating the highest levels. Importantly, this investigation shows that TA encompasses more than the conventional symptoms of worry and emotionality, as social withdrawal emerges as a notable facet. To shed light on the differences in TA across countries, this research has employed an analytical framework building on the bioecological model (Bronfenbrenner, 1979, 1994, 2005) and the biopsychosocial model (Lowe et al., 2008). This framework enriches our understanding of TA within the context of cross-cultural research. The research identifies key determinants of TA, including cultural pressures reflecting microsystem and macrosystem influences, educational system regulations reflecting exosystem influences, the nature and platform of assessment reflecting mesosystem influences, and mental health factors reflecting individual influences.

However, this research goes beyond viewing TA solely as an outcome of these factors, as it also posits that TA is shaped by interactions and complexities across two spheres. This tension primarily arises from the education system (represented in the mesosystem and exosystem) and requirements of students (represented in macrosystem, microsystem, and individual factors), particularly when students transition from undergraduate to postgraduate studies or move from an education system in one country to a different one in another. Furthermore, a reciprocal relationship is established between TA, the education system, and mental health issues, where each component influences and intertwines with the others. The research also emphasizes the pivotal role of coping strategies in alleviating tensions between the individual, societal frameworks, and the educational environment. These coping mechanisms are deeply influenced by cultural contexts and educational system dynamics. Finally, this research accentuates the varying

impacts of TA on academic outcomes across different cultural backgrounds, underscoring the importance of discerning the contributing factors in this complex relationship.

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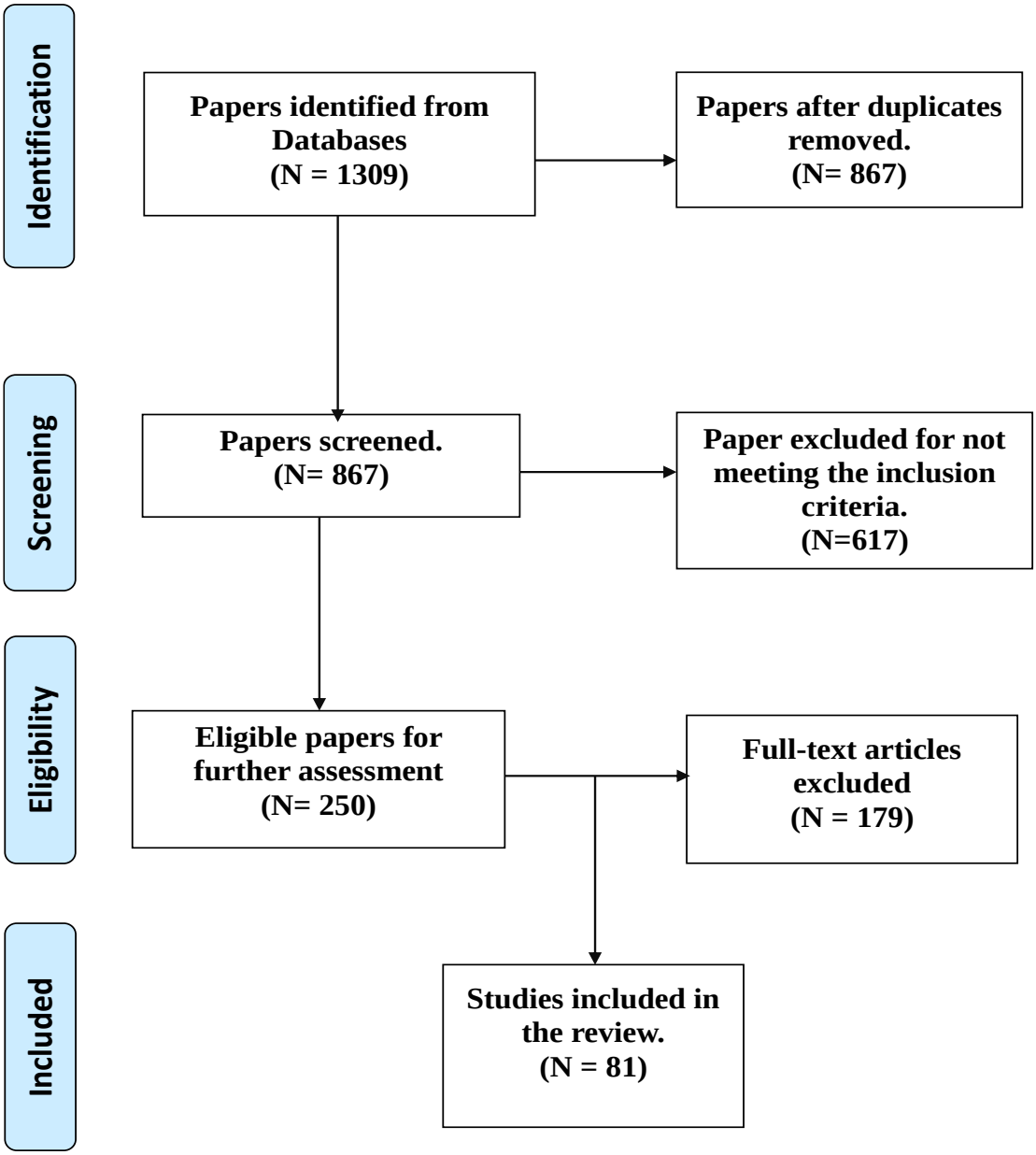
Appendix A: Supplementary Materials for Chapter 3 (Methodology)

A. 1 PRISMA flowchart of the literature search process



A. 2 Data Extraction

Author(s)	Country	UG/ PG/ Mixed	Sample Size	Age (Years) *M*	Research Methods	TAI Measures	TA Scores	%	Type of Assessment	Quality
Afza et al. (2012)	Pakistan	UG	388	20.82	Cross-sectional, descriptive, comparative between groups	WTAS	2.93	59	Examination	85%
Ali et al. (2015)	Pakistan	UG	387	19.79	Cross-sectional, descriptive, comparative between groups	WTAS	2.70	54	Examination	86%
Alkis and Temizel (2017)	Turkey	UG	316	22.27	Cross-sectional, descriptive, comparative between groups, correlation	MSLQ	3.71	74.23	Examination	86%
Ambala (2019)	Ghana	UG	198	29.97	Cross-sectional, descriptive, comparative between and within groups, correlation	SIM	2.58	51.53	Examination	86%
Arici (2018)	Turkey	UG	64		Cross-sectional, descriptive, comparative between groups, correlation	TAI	2.22	55.50	Computer examination	64%
Azadan and Khorvash (2016)	Iran	PG	256	/	Cross-sectional, descriptive, correlation	STAS	10.32	27.89	Examination	80%
Azmi et al. (2014)	Malaysia	UG	1018	21.19	Cross-sectional, descriptive, comparative between groups, correlation	STAS	3.08	62	Examination	77%
Baig et al. (2018)	Saudi Arabia	UG	199		Cross-sectional, descriptive, comparative between groups	WTAS	3.26	65	Computer + examination	77%
Bangert (2003)	US	PG	34		Cross-sectional, comparative between groups	Specialized MARS	24.18	60.44	Peer and traditional examination	59%
Barrows et al. (2013)	India	UG	110	20.22	Cross-sectional, descriptive, comparative within groups, correlation	MSLQ	13.3	47.50	Examination	82%

Bay and Pacharn (2017)	Canada	PG	47	23.2	Cross-sectional, descriptive, comparative between groups, correlation	PEWES	25.97	57.70	Collaborative and individual examination	73%
Bellinger et al. (2015)	US	UG	248	20.05	Cross-sectional, descriptive, comparative between groups, correlation	CTAS	62.81	58.16	Examination	86%
Brand and Schoonheim-Klein (2008)	Netherlands	UG	88		Cross-sectional, descriptive, comparative between groups, correlation	STAI	41.55	51.94	Examination	77%
Breedlove et al. (2004)	US	UG	131		Cross-sectional, descriptive, comparative between groups	CTAS	18.15	64.83	Collaborative and individual examination	77%
Brown and Tallon (2015)	US	UG	70	/	Cross-sectional, descriptive, comparative between groups	SIM	4.43	63.24	Examination	59%
Burnham and Makienko (2018)	US	UG	244	20	Cross-sectional, descriptive, comparative between groups, correlation	TAI	21.2	60.57	Coursework and examination	82%
Cassady (2002)	US	UG	64		Longitudinal study, descriptive, comparative within groups, correlation	CTAS	62.13	57.53	Computer + take home	68%
Cassady (2004)	US	UG	Study 1 277 Study 2 88	20.22 19.22	Cross-sectional, descriptive, correlation	CTAS	/	/	Examination	82%
Cassady and Gridley (2005)	US	UG	84		Cross-sectional, descriptive, comparative between groups, correlation	CTAS	70.01	64.82	Computer + examination	73%
Cassady and Johnson (2002)	US	UG	168	21	Cross-sectional, descriptive, comparative between groups, correlation	CTAS	50.00	46.29	Examination	86%
Chamorro-Premuzic et al. (2008)	UK+US	UG	388	19.7	Cross-sectional, descriptive, correlation	RTT	148.5	74.25	Examination	77%
Chang (2008)	Taiwan	UG	160	//	Cross-sectional, descriptive, comparative within groups	Specialized LTA	3.86	77.20	Listening test	82%
Cohen et al. (2008)	Israel	UG	216	23.11	Cross-sectional, descriptive, correlation	TAI	2.15	53.75	Examination	82%

Croyle et al. (2012)	US	UG	350	20.16	Cross-sectional, descriptive, comparative between groups, correlation	TAI	7.81	31.24	Examination	73%
Dull et al. (2015)	US	UG	316	19.83	Cross-sectional, descriptive, comparative between groups, correlation	MSLQ	4.02	57.43	Examination	86%
Duty et al. (2016)	US	UG	183		Cross-sectional, descriptive, comparative between groups, correlation	CTAS	56.6	56.60	Examination	82%
Farooqi et al. (2012)	Pakistan	UG	150		Cross-sectional, descriptive, comparative between groups, correlation	TAI	40.02	50.02	Examination	77%
Genc (2017)	Serbia	UG	263	23	Cross-sectional, descriptive, correlation	TAI	46.11	57.64	Examination	91%
Gerwing et al. (2015)	Canada	UG	1099	20.32	Cross-sectional, descriptive, correlation	TAI	43	53.75	Examination	91%
Gharib and Phillips (2012)	US	UG	222		Cross-sectional, descriptive, comparative between groups	PEWES	23.45	46.90	Examination	68%
Gharib et al. (2012)	US	UG	396		Cross-sectional, descriptive, comparative between groups, correlation	PEWES	23.6	47.19	Examination	73%
Guraya et al. (2018)	Saudi Arabia	UG	191		Cross-sectional, descriptive, comparative between and within groups	SIM	3.82	76.44%	Examination	77%
Hancock (2001)	US	Mixed	61	31.2	Cross-sectional, descriptive, comparative between groups	TAI	39	48.75	Examination	82%
Hashmat et al. (2008)	Pakistan	UG	120	24.2	Cross-sectional, descriptive, comparative between groups	SIM	64	64.00	Oral assessment	59%
Hong and Karstensson (2002)	US	Mixed	UG 209 PG 89	/	Cross-sectional, descriptive, correlation	TAI	1.9	47.50	Examination	86%
Hsieh et al. (2012)	US	UG	297		Cross-sectional, descriptive, correlation	MSLQ	//		Examination	86%
Huang (2018)	Taiwan	Mixed	251	20	Cross-sectional, descriptive, correlation	STAS	110.83	59.91	Oral assessment	91%

Huang and Hung (2013)	Taiwan	Mixed	352	//	Cross-sectional, descriptive, comparative between groups, correlation	STAI	54.4	68.00	Oral assessment	86%
Kapitanoff and Pandey (2018)	US	UG	71	22.78	Cross-sectional, descriptive, comparative between and within groups, correlation	TAI	40.00	49.99	Collaborative and individual examination	77%
Keogh et al. (2004)	UK	UG	106	22.08	Cross-sectional, descriptive, comparative between groups, correlation	RTAS	//		Coursework and examination	73%
Kolagari et al. (2018)	Iran	UG	39	20.15	Cross-sectional, descriptive, comparative between groups	STAS	11.62	46.49	Computer + examination	86%
Kurt et al. (2014)	Turkey	UG	376	18.5	Cross-sectional, descriptive, comparative between groups	TAI	39.44	49.30	Examination	82%
Lee et al. (2015)	Taiwan	UG	94	20.6	Cross-sectional, descriptive, comparative between groups	STAI	3.91	97.75	Examination + listening test	77%
Levpušček and Peklaj (2007)	Slovenia	UG	245		Cross-sectional, descriptive, comparative between groups, correlation	MSLQ	3.62	51.71	Oral assessment	73%
Liew et al. (2014)	US	UG	184	18.55	Cross-sectional, descriptive, correlation	SIM	2.61	37.29	Examination	86%
Lotz and Sparfeldt (2017)	Germany	UG	192	22.36	Longitudinal study, descriptive, comparative within group, correlation	Other: S_TAQ	4.03	57.57	Computer + examination	82%
Macher et al. (2013)	Austria	UG	284	21.4	Cross-sectional, descriptive, correlation	SIM	9.33	54.88	Examination	86%
Marshall and Jones (2003)	UK	PG	25	//	Cross-sectional, descriptive, comparative between groups	STAI	53.7	67.13	Oral assessment and examination	73
McIlroy et al. (2000)	Ireland	UG	177	23	Cross-sectional, descriptive, comparative between groups, correlation	RTAS	//		Examination	86%
Moneta et al. (2007)	UK	UG	135	24.4	Cross-sectional, descriptive, correlation	EVAN	4.22	60.29	Examination	91%
Nausheen and Richardson (2013)	Pakistan	PG	368	22.45	Cross-sectional, descriptive, correlation	MSLQ	4.12	58.86	Examination	91%

Nelso and Knight (2010)	US	UG	118	20.9	Cross-sectional, descriptive, comparative between groups, correlation	TAI	1.94	48.44	Examination	73%
Nunez-Pena and Bono (2019)	Spain	UG	180	25:21.3	Cross-sectional, descriptive, comparative between groups, correlation	TAI_G	70.86	59.05	Examination	91%
Núñez-Peña et al. (2016)	Spain	UG	168	19.64	Cross-sectional, descriptive, comparative between and within groups	Other: CAEX	2.31	38.57	Oral assessment and examination	82%
Otterpoh et al. (2019)	Germany	UG	166	20	Cross-sectional, descriptive, correlation	TAI_G	2.21	55.25	Examination	86%
Pandey and Kapitanoff (2011)	US	UG	82	19	Cross-sectional, descriptive, comparative between groups, correlation	TAI	40.2	50.24	Collaborative and individual examination	77%
Parks-Stamm, et al., (2010)	US	UG	51		Cross-sectional, descriptive, correlation	TAI	//		Computer examination	77%
Pettijohn and Sacco (2007)	US	UG	66	/	Cross-sectional, descriptive, comparative between groups	SIM	3.165	63.30	Examination	68%
Rehman et al. (2018)	Pakistan	UG	300	22.14	Cross-sectional, descriptive, comparative between groups	SIM	62.21	62.21	Examination	55%
Relojo-Howell and Stoyanova (2019)	Bulgaria n	UG	151	26.78	Cross-sectional, descriptive, comparative between and within groups, correlation	WTAS	2.61	52.20	Examination	82%
Rezazadeh and Tavakoli (2009)	Iran	UG	110		Cross-sectional, descriptive, comparative between groups, correlation	Suinn-TAQ	119.5	49.77	Examination	80%
Ringeisen et al. (2010)	Germany South Africa	UG	183 102	22.3 20	Cross-sectional, descriptive, comparative between groups, correlation	TAI_G	71.2 72.2	59.33 60.17	Examination	77%
Rogaten et al. (2013)	UK	UG	406	24.3 27.7	Cross-sectional, descriptive, correlation	EVAN	4.1	58.57	Coursework + examination	82%
Rohe et al. (2006)	US	UG	81	22.7 24.7	Cross-sectional, descriptive, comparative between groups	TAI	37.5	46.88	Examination	77%
Sansgiry and Sail (2006)	US	UG	198	26.3	Cross-sectional, descriptive, comparative between groups, correlation	STAS	2.6	52.00	Examination	77%

Schult and McIntosh (2004)	US	UG	265	21	Cross-sectional, descriptive, comparative between groups	Others: SACS	6.2	31.00	Computer + examination	73%
Seeley et al. (2018)	US	UG	46		Cross-sectional, descriptive, comparative between groups	CTAS	37.33	54.89	Computer + examination	55%
Seng (2015)	Malaysia	UG	140	//	Cross-sectional, comparative between groups, correlation	Specialized MARS	70	46.67	Examination	82%
Shermis et al. (2001)	US	UG	623	21	Cross-sectional, descriptive, comparative between groups	TAI	39.16	48.95	Computer examination	82%
Spada and Moneta (2014)	UK	UG	101	27.46	Cross-sectional, descriptive, correlation	EVAN	4.15	59.29	Examination	86%
Stowell and Bennett (2010)	US	UG	69	21.3	Cross-sectional, descriptive, counterbalanced design	AEQ	33.16	51.02	Computer + examination	73%
Stowell et al. (2012)	US	UG	61	21.5	Cross-sectional, descriptive, comparative between groups, correlation	AEQ	2.62	52.33	Computer + examination	73%
Talib and Sansgiry (2012)	Pakistan	Mixed	199		cross sectional, descriptive, comparative between groups, correlation	STAS	2.5	50.00	Examination	86%
Tanaka et al. (2006)	Japan	UG	53		Cross-sectional, descriptive, correlation	STAI	2.73	68.25	Oral assessment	73%
Vanstone and Hicks (2019)	Australia	UG	148	22.84	Cross-sectional, descriptive, correlation	TAI	41.12	51.40	Examination	86%
Vaz et al. (2018)	India	UG	341	20	Cross-sectional, descriptive, correlation	others: TAS_MA	0.179	17.89	Examination	70%
Yang and Taylor (2013)	US	Mixed	150	27.97	Cross-sectional, descriptive, correlation	MSLQ	3.96	56.57	Computer examination	82%
Yanxia (2017)	China	UG	330	18	Cross-sectional, descriptive, comparative between groups, correlation	Specialized TACBSET	3.11	62.20	Oral assessment	77%
Yusefzadeh et al. (2019)	Iran	UG	25	23.48	Cross-sectional, descriptive, comparative between groups, correlation	TAI	47.9	63.87	Examination	91%
Zhang (2017)	China	UG	518	19.26	Cross-sectional, descriptive, correlation	MSLQ	2.85	40.71	Examination	86%

Zhang et al. (2014)	US	Mixed	166	26.3	Cross-sectional, descriptive, comparative between groups, correlation	TAI	40	50	Examination	82%

A. 3 Criteria for assessing the quality of quantitative studies.

Criteria		YES (2)	PARTIAL (1)	NO (0)	N/A
1	Question / objective sufficiently described?				
2	Study design evident and appropriate?				
3	Method of subject/comparison group selection or source of information/input variables described and appropriate?				
4	Subject (and comparison group, if applicable) characteristics sufficiently described?				
5	If interventional and random allocation was possible, was it described?				
6	If interventional and blinding of investigators was possible, was it reported?				
7	If interventional and blinding of subjects was possible, was it reported?				
8	Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?				
9	Sample size appropriate?				
10	Analytic methods described/justified and appropriate?				
11	Some estimate of variance is reported for the main results?				
12	Controlled for confounding?				
13	Results reported in sufficient detail?				
14	Conclusions supported by the results?				

A. 4 Quality Ratings of Included Studies

Author(s)	Question and Objectives	Study Design	Methods of Subjects	Subject Characteristics	Outcome Measure	Sample Size	Analytic methods	Variance	Confounding Factors	Results	Conclusions	Total sum	%
Afza et al. (2012)	2	2	2	2	1	2	2	0	NA	2	2	17	85%
Ali et al. (2015)	2	2	2	2	2	2	1	1	1	2	2	19	86%
Alkis and Temizel (2017)	2	2	1	2	1	2	2	2	1	2	2	19	86%
Ambala (2019)	2	2	2	2	1	2	1	1	2	2	2	19	86%
Arici (2018)	2	2	1	1	1	1	1	1	1	2	1	14	64%
Azadan and Khorvash (2016)	2	2	2	1	1	2	1	1	NA	2	2	16	80%
Azmi et al. (2014)	2	2	2	2	1	2	2	0	1	2	1	17	77%
Baig et al. (2018)	2	2	2	1	2	2	1	1	0	2	2	17	77%
Bangert (2003)	2	2	0	1	1	1	1	0	1	2	2	13	59%
Barrows et al. (2013)	2	2	2	2	1	2	1	0	2	2	2	18	82%
Bay and Pacharn (2017)	2	2	1	2	1	1	1	1	2	2	1	16	73%
Bellinger et al. (2015)	2	2	2	2	1	2	1	1	2	2	2	19	86%
Brand and Schoonheim-Klein (2008)	2	2	2	0	2	1	2	1	1	2	2	17	77%
Breedlove et al. (2004)	2	2	2	1	1	2	1	0	2	2	2	17	77%
Brown and Tallon (2015)	1	2	0	1	2	1	1	0	1	2	2	13	59%
Burnham and Makienko (2018)	2	2	1	2	1	2	1	1	2	2	2	18	82%
Cassady and Gridley (2005)	2	2	2	1	1	1	1	1	1	2	2	16	73%
Cassady and Johnson (2002)	2	2	1	2	1	2	2	1	2	2	2	19	86%
Cassady (2002)	2	2	1	1	1	1	1	1	1	2	2	15	68%
Cassady (2004)	2	2	2	2	1	2	1	0	2	2	2	18	82%
Chamorro-Premuzic et al. (2008)	2	2	1	2	1	2	2	0	2	2	1	17	77%
Chang (2008)	2	2	1	2	2	2	1	1	1	2	2	18	82%

Cohen et al. (2008)	2	2	1	2	1	2	1	1	2	2	2	18	82%
Croyle et al. (2012)	2	2	1	2	1	2	1	0	1	2	2	16	73%
Dull et al. (2015)	2	2	1	2	2	2	1	1	2	2	2	19	86%
Duty et al. (2016)	2	2	2	2	1	2	1	1	1	2	2	18	82%
Farooqi et al. (2012)	2	2	2	2	1	2	1	0	1	2	2	17	77%
Genc (2017)	2	2	1	2	2	2	2	2	1	2	2	20	91%
Gerwing et al. (2015)	2	2	2	2	1	2	2	1	2	2	2	20	91%
Gharib and Phillips (2012)	2	2	1	1	1	2	1	0	1	2	2	15	68%
Gharib et al. (2012)	2	2	1	1	1	2	1	1	1	2	2	16	73%
Guraya et al. (2018)	2	2	1	1	2	2	2	0	1	2	2	17	77%
Hancock (2001)	2	2	1	2	2	2	1	0	2	2	2	18	82%
Hashmat et al. (2008)	2	1	2	2	1	1	1	0	1	1	1	13	59%
Hong and Karstensson (2002)	2	2	2	1	2	2	2	0	2	2	2	19	86%
Hsieh et al. (2012)	2	2	1	2	2	2	2	0	2	2	2	19	86%
Huang and Hung (2013)	2	2	1	2	2	2	2	0	2	2	2	19	86%
Huang (2018)	2	2	1	2	2	2	2	1	2	2	2	20	91%
Kapitanoff and Pandey (2018)	2	2	1	2	1	1	1	2	1	2	2	17	77%
Keogh et al. (2004)	2	2	1	2	1	2	1	0	2	2	1	16	73%
Kolagari et al., (2018)	2	2	1	2	2	1	2	1	2	2	2	19	86%
Kurt et al. (2014)	2	2	1	2	2	2	2	1	1	2	1	18	82%
Lee et al. (2015)	2	2	1	2	2	1	1	0	2	2	2	17	77%
Levpušček and Peklaj (2007)	2	2	1	1	1	2	1	1	1	2	2	16	73%
Liew et al. (2014)	2	2	1	2	1	2	2	1	2	2	2	19	86%
Lotz and Sparfeldt (2017)	2	2	1	2	2	2	1	1	1	2	2	18	82%
Macher et al. (2013)	2	2	1	2	2	2	1	1	2	2	2	19	86%
Marshall and Jones (2003)	2	2	1	0	2	1	1	1	2	2	2	16	73%
McIlroy et al., (2000)	2	2	1	2	2	2	1	1	2	2	2	19	86%
Moneta et al. (2007)	2	2	1	2	2	2	2	1	2	2	2	20	91%
Nausheen and Richardson (2013)	2	2	2	2	2	2	2	1	1	2	2	20	91%

Nelson and Knight (2010)	2	2	1	1	1	2	1	0	2	2	2	16	73%
Nunez-Pena and Bono (2019)	2	2	2	2	1	2	2	2	1	2	2	20	91%
Núñez-Peña et al. (2016)	2	2	1	2	2	2	1	0	2	2	2	18	82%
Otterpoh et al. (2019)	2	2	1	2	2	2	2	0	2	2	2	19	86%
Pandey and Kapitanoff (2011)	2	2	1	2	1	1	1	1	2	2	2	17	77%
Parks-Stamm et al. (2010)	2	2	2	1	2	1	1	0	2	2	2	17	77%
Pettijohn and Sacco (2007)	2	2	1	1	2	1	1	0	1	2	2	15	68%
Rehman et al. (2018)	1	2	1	2	0	2	1	0	1	1	1	12	55%
Relojo-Howell and Stoyanova (2019)	2	2	2	2	1	2	2	0	2	2	1	18	82%
Rezazadeh and Tavakoli (2009)	2	2	2	1	1	2	1	2	NA	2	1	16	80%
Ringeisen et al. (2010)	2	2	1	2	1	2	2	1	1	2	1	17	77%
Rogaten et al. (2013)	2	2	1	2	2	2	1	1	2	2	1	18	82%
Rohe et al. (2006)	2	2	2	2	2	1	1	0	1	2	2	17	77%
Sansgiry and Sail (2006)	1	2	2	2	2	2	1	0	1	2	2	17	77%
Schult and McIntosh (2004)	2	2	1	2	1	2	1	0	1	2	2	16	73%
Seeley et al. (2018)	2	2	1	0	1	1	1	0	1	2	1	12	55%
Seng (2015)	2	2	2	1	2	2	1	1	2	2	1	18	82%
Shermis et al. (2001)	2	2	1	2	2	2	1	0	2	2	2	18	82%
Spada and Moneta (2014)	2	2	1	2	1	2	2	1	2	2	2	19	86%
Stowell and Bennett (2010)	1	2	2	2	1	1	1	0	2	2	2	16	73%
Stowell et al. (2012)	2	2	1	2	1	1	1	0	2	2	2	16	73%
Talib and Sansgiry (2012)	2	2	2	2	2	2	1	1	1	2	2	19	86%
Tanaka et al. (2006)	2	2	1	1	2	1	1	0	2	2	2	16	73%
Vanstone and Hicks (2019)	2	2	1	2	2	2	2	0	2	2	2	19	86%
Vaz et al. (2018)	2	2	2	2	1	2	1	0	NA	1	1	14	70%
Yang and Taylor (2013)	2	2	2	2	2	2	1	0	2	2	1	18	82%
Yanxia (2017)	2	2	1	2	1	2	1	1	2	2	1	17	77%
Yusefzadeh et al. (2019)	2	2	2	2	2	1	2	1	2	2	2	20	91%
Zhang (2017)	2	2	1	2	1	2	2	2	1	2	2	19	86%

Zhang et al. (2014)	2	2	2	2	2	2	1	0	2	1	2	18	82%

A. 5 Participants' Demographic Information: Survey Data

Demographics	Local British	Local Saudi	Eastern international	European international
Age				
Mean	29.33	30.92	28.2	25.83
		N (%)		
20–24	54 (34)	12 (7.8)	17 (21.8)	18 (46.2)
25-29	41 (25.8)	44 (28.8)	36 (46.2)	13 (33.3)
30-34	18 (11.3)	44 (28.8)	17 (21.8)	6 (15.4)
35-39	15 (9.4)	31 (20.3)	5 (6.4)	1 (2.6)
>40	31 (19.5)	21 (13.7)	3 (3.8)	1 (2.6)
Gender				
Male	51 (32.1)	43 (28.1)	14 (17.9)	6 (15.4)
female	107 (67.3)	109 (71.2)	63 (80.8)	33 (84.6)
PNS*	1 (0.6)	1 (.7)	1 (1.3)	0 (0)
Marital Status				
Single	112 (70.5)	63 (41.2)	42 (53.9)	34 (87.2)
Married	45 (28.3)	86 (56.2)	35 (44.9)	3 (7.7)
PNS*	2 (1.3)	2 (1.3)	1 (1.3)	2 (5.1)
Subject				
College of Arts	33 (20.8)	36 (23.5)	7 (9)	2 (5.1)
College of Medical, Veterinary & Life Sciences	16 (10.1)	13 (8.5)	25 (32.1)	3 (7.7)
College of Science & Engineering	42 (62.4)	15 (9.8)	23 (29.5)	7 (17.9)
College of Social Sciences	66 (41.5)	82 (53.6)	23 (29.5)	27 (69.2)
GPA				
Mean	15.64	18.9	15.99	15.77
0–11	4 (2.5)	0 (0)	3 (3.8)	2 (5.1)
12-14	27 (17.0)	3 (2)	10 (12.8)	4 (10.3)

15-17	83 (52.2)	14 (9.2)	34 (43.6)	10 (25.6)
18-22	40 (25.2)	133 (86.9)	28 (35.9)	20 (51.3)
Nationality				
British	159 (100)	0 (0)	0 (0)	0
Saudi	0	153 (100)	49 (62.8)	0
European	0	0 (0)	0 (0.0)	39 (100)
Eastern	0	0 (0)	29 (37.2)	0
Total (N)	159	153	78	39

Note *PNS: Prefer not to say.

A. 6 The online Survey

Section 1: Demographic questions

Gender	Male Female Prefer not to say
Subject of study	College of Arts College of Medical, Veterinary & Life Sciences College of Science & Engineering College of Social Sciences.
Age	20-24 25-29 30-34 35-39 >40
Marital Status	Single Married Prefer not to say
Nationality	British Saudi Others … please specify
GPA Out of 22-point scale	0-11 12-14 15-17 18-22

Section2: Test Anxiety Inventory

mind garden

www.mindgarden.com

To Whom It May Concern,

The above-named person has made a license purchase from Mind Garden, Inc. and has permission to administer the following copyrighted instrument up to that quantity purchased:

Test Anxiety Inventory

The two sample items only from this instrument as specified below may be included in your thesis or dissertation. Any other use must receive prior written permission from Mind Garden. The entire instrument form may not be included or reproduced at any time in any other published material. Please understand that disclosing more than we have authorized will compromise the integrity and value of the test.

Citation of the instrument must include the applicable copyright statement listed below.
Sample Items:

I feel confident and relaxed while taking tests.
Thinking about my grade in a course interferes with my work on tests.

Sincerely,

Robert Most
Mind Garden, Inc.
www.mindgarden.com

Section 3: Depression, Anxiety and Stress Scale

Please read each statement and then choose the appropriate option which indicates how much the statement applied to you *over the past week.*

	ITEMS	Did not apply to me at all	Applied to me to some degree, or some of the time	Applied to me to a considerable degree, or a good part of time	Applied to me very much, or most of the time
1	I found it hard to wind down				
2	I was aware of dryness of my mouth				
3	I couldn't seem to experience any positive feeling at all				
4	I experienced breathing difficulty (eg excessively rapid breathing, breathlessness in the absence of physical exertion)				
5	I found it difficult to work up the initiative to do things				
6	I tended to over-react to situations				
7	I experienced trembling (eg in the hands)				
8	I felt that I was using a lot of nervous energy				
9	I was worried about situations in which I might panic and make a fool of myself				
10	I felt that I had nothing to look forward to				
11	I found myself getting agitated				
12	I found it difficult to relax				
13	I felt downhearted and blue				
14	I was intolerant of anything that kept me from getting on with what I was doing				
15	I felt I was close to panic				
16	I was unable to become enthusiastic about anything				
17	I felt I wasn't worth much as a person				
18	I felt that I was rather touchy				
19	I was aware of the action of my heart in the absence of physical exertion (eg sense of heart rate increase, heart missing a beat)				
20	I felt scared without any good reason				
21	I felt that life was meaningless				

Section 4: Sleep condition indicator (SCI)

Read each statement and then choose the appropriate option.

Item	Score				
	4	**3**	**2**	**1**	**0**
Thinking about a typical night in the last month…					
1…. how long does it take you to fall asleep?	0–15 min	16–30 min	31–45 min	46–60 min	≥ 61 min
2…. if you then wake up during the night, how long are you awake for in total (add all the awakenings up)	0–15 min	16–30 min	31–45 min	46–60 min	≥ 61 min
3…. how many nights a week do you have a problem with your sleep?	0–1	2	3	4	5–7
4…. how would you rate your sleep quality?	Very good	Good	Average	Poor	Very poor
Thinking about the past month, to what extent has poor sleep…					
5…. affected your mood, energy, or relationships?	Not at all	A little	Some-what	Much	Very much
6…. affected your concentration, productivity, or ability to stay awake?	Not at all	A little	Some-what	Much	Very much
7…. troubled you in general?	Not at all	A little	Some-what	Much	Very much
Finally…					
8…. how long have you had a problem with your sleep?	I don't have a problem/ < 1 month	1–2 month	3–6 month	7–12 month	> 1 year

Section 5: Procrastination Scale

Read each statement and then choose the appropriate option.

	Items	strongly agree	agree	undecided	disagree	strongly disagree
1	I needlessly delay finishing jobs, even when they're important.					
2	I postpone starting in on things I don't like to do.					
3	When I have a deadline, I wait until the last minute.					
4	I delay making tough decisions.					
5	I keep putting off improving my work habits.					
6	I manage to find an excuse for not doing something.					
7	I put the necessary time into even boring tasks, like studying.					
8	I am an incurable time waster.					
9	I'm a time waster now but I can't seem to do anything about it.					
10	When something's too tough to tackle, I believe in postponing it.					
11	I promise myself I'll do something and then drag my feet.					
12	Whenever I make a plan of action, I follow it.					
13	Even though I hate myself if I don't get started, it doesn't get me going.					
14	I always finish important jobs with time to spare.					
15	I get stuck in neutral even though I know how important it is to get started.					
16	Putting something off until tomorrow is not the way I do it					

Section 6: Open questions

1- What are the primary sources of test anxiety for you?

2- Have you used any coping strategies which help to reduce your test anxiety?

3- What type of assessment increases your test anxiety?

A. 7 The online Survey Arabic version

القسم الأول: المعلومات الديموغرافية

الجنس	• ذكر • انثى • أفضل عدم الافصاح
التخصص الدراسي	• كلية الآداب • كلية الطب، الطب البيطري، وعلوم الحياة • كلية العلوم والهندسة • كلية العلوم الاجتماعية
العمر	• 20-24 • 25-29 • 30-34 • 35-39 • >40
الحالة الاجتماعية	• أعزب • متزوج • أفضل عدم الإفصاح
الجنسية	• سعودي • أخرى ...
المعدل الدراسي	• 11-0 • 14-12 • 17-15 • 22-18

القسم الثاني: مقياس الاكتئاب والقلق والضغوط

	العبارات	لا ينطبق عليّ بتاتاً	ينطبق عليّ بعض الشيء أو قليلاً من الأوقات	ينطبق عليّ بدرجة ملحوظة أو بعض الأوقات	ينطبق عليّ كثيراً جداً، أو معظم الأوقات
1	وجدت صعوبة في الاسترخاء والراحة				
2	شعرت بجفاف في حلقي				
3	لم يبدو لي أن بإمكاني الإحساس بمشاعر إيجابية على الإطلاق				
4	شعرت بصعوبة في التنفس (شدة التنفس السريع، اللهثان بدون القيام بمجهود جسدي مثلاً)				
5	وجدت صعوبة في أخذ المبادرة بعمل الأشياء				
6	كنت أميل إلى ردة فعل مفرطة للظروف والأحداث				
7	شعرت برجفة (باليدين مثلاً)				
8	شعرت بأنني أستهلك الكثير في الطاقة العصبية (شعرت بأنني أستهلك الكثير من قدرتي على تحمل التوتر العصبي)				
9	كنت خائفاً من مواقف قد أفقد فيها السيطرة على أعصابي واسبب إحراجاً لنفسي				
10	شعرت بأن ليس لدي أي شيء أتطلع إليه				
11	شعرت بأنني مضطرب ومنزعج				
12	أجد صعوبة في الاسترخاء				
13	شعرت بالحزن والغم				
14	كنت لا أستطع تحمل أي شيء يحول بيني وبين ما أرغب في القيام به				
15	شعرت بأنني على وشك الوقوع في حالة من الرعب المفاجئ بدون سبب				
16	فقدت الشعور بالحماس لأي شيء				
17	شعرت بأن قيمتي قليلة كشخص				
18	شعرت بأنني أميل إلى الغيظ بسرعة				
19	شعرت بضربات قلبي بدون مجهود جسدي (زيادة في معدل الدقات، أو غياب دقة قلب، مثلاً)				
20	شعرت بالخوف بدون أي سبب وجيه				
21	شعرت بأن الحياة ليس لها معنى				

القسم الثالث: مقياس كفاءة النوم

العبارات	الدرجات				
	4	3	2	1	0
فكر إحدى الليالي المعتادة خلال الشهر الماضي:					
1-كم تستغرق من الوقت حتى تنام؟	0-15دقيقة	16-30دقيقة	31-45دقيقة	46-60دقيقة	61 دقيقة≤
2-إذا استيقظت أثناء الليل...كم تبلغ فترة استيقاظك الإجمالية؟ (المجموع الكلي لفترات الاستيقاظ)	0-15دقيقة	16-30دقيقة	31-45دقيقة	46-60دقيقة	61 دقيقة≤
3-كم ليلة في الأسبوع تواجه فيها مشاكل في النوم؟	0-1	2	3	4	5-7
4-كيف تقيم جودة النوم لديك؟	ممتاز	جيدجدا	متوسط	سيئ	سيئ جدا
إلى أي مدى كان نومك مضطرب خلال الشهر الماضي:					
5- أثَرَ على مزاجك، طاقتك او علاقاتك؟	ابدا	قليلا	متوسط	كثيرا	كثير جدا
6-أثر على تركيزك وانتاجيتك او قدرتك ان تبقى مستيقظا	ابدا	قليلا	متوسط	كثيرا	كثير جدا
7- أثر عليك بوجه عام	ابدا	قليلا	متوسط	كثيرا	كثير جدا
أخيرا					
8-منذ متى تواجه مشكلة في نومك	عانيت النوم من مشاكل في لفترة النوم اقل من شهر	من شهر الى شهرين	3-6 أشهر	7-12 شهر	أكثر من سنة

القسم الرابع: مقياس التسويف

	العبارات	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
1	أقوم بتأجيل مهامي الدراسية، بدون أي داع، حتى وان كانت مهام مهمة					
2	أقوم بتأجيل الشروع في المهام الدراسية التي لا أحب القيام بها					
3	عدما يحدد لي موعدا لإنجاز مهامي الدراسية، انتظر حتى اللحظة الأخيرة					
4	أقوم بتأجيل اتخاذ قرارات مهمة متعلقة بمهامي الدراسية					
5	أقوم بتأجيل محاولة تحسين عاداتي في أداء مهامي الدراسية					
6	أتمكن من إيجاد الأعذار لعدم القيام بمهام ما					
7	اخصص الوقت المناسب لأنهاء المهام الدراسية حتى وان كانت مهام مزعجة					
8	أنا مضيع لأوقات المهام الدراسية بشكل كبير					
9	انا مضيع للوقت، ولكن لا يبدو انني سأحاول تصحيح ذلك					
10	أعمل على تأجيل المهام الدراسية الصعبة					
11	أعد نفسي بالبدء في القيام بمهام دراسية محددة، ثم اتلكأ في عمل ذلك.					
12	عندما اضع خطة لتنفيذ مهامي الدراسية، أقوم بإتباعها وتنفيذها بحسب ما خطط لها.					
13	حتى لو فكرت في ان اكره نفسي، فهذا أيضا لا يحفزني على الإقدام في البدء بأداء مهامي الدراسية					
14	عادة انهي مهامي الدراسية مع اختصار في الوقت المخصص لها					
15	أضل على الحياد رغم معرفتي بأهمية البدء في تنفيذ تلك المهام الدراسية					
16	ليس من عاداتي في أداء مهامي الدراسية، التأجيل للغد.					

القسم الخامس: الأسئلة المفتوحة

1-ما هي الأسباب الأساسية لقلق الاختبار بالنسبة لك؟

2- هل استخدمت أي إستراتيجيات للتكيف تساعد في تقليل قلق الاختبار لديك؟

3- ما نوع التقييم الذي يزيد من قلق الاختبار لديك؟

A. 8 Interview Questions

1- **Could you tell me about your** (5 Minutes)

- Age
- Faculty of study
- Area of specialisation
- How are you finding your master experience? (enjoy /difficult? explain)
- Can you describe your experiences of study/assessment? (Prompts: type of assessment? similar to or different from before and where (home) and when (undergraduate/ postgraduate)?

2- TA Experiences (second and third question 20 Minutes)

- How do you experience TA?

3- Please choose 3 photographs that represent your most significant experiences of TA as a PGT student:

- Why did you select these pictures?
- Could you describe what is observable within these pictures?
- How are these photos related to your experience of TA? (Why).
- What made you feel this way? (Prompts: assessment)

4- Triggers of TA (Fourth and fifth question 30 minutes)

- What are the triggers of TA for you? (explain, how, why)
- Do you think that the way that you have been assessed during your PGT studies is related to your experience of TA? How? Explain)
- What are the types/characteristics of the assessment which make you highly anxious? (feeling/preparation)
- If you had to choose, which type of assessment would you prefer? (Why, feelings).

5 - Now, I will tell you a story about … Then we will discuss your views and opinions of the story.

Background for the vignettes:

For British and Saudi local students:
Harry/Ahlam is a British/Saudi PGT student at a UK/Saudi university. He decided to continue his studies in the UK/Saudi Arabia for many reasons, such as the cost of living, to be close to his existing social circle, and familiarity with his culture.

For international students:
Mona is an international PGT student in the UK. She was motivated to study in the UK by the value added from a UK degree, the high teaching quality and the education system, in addition to the academic and administrative support provided by UK universities. So, she decided to move despite the different language, culture and assessment system. She is suffering from being isolated from family and friends, in addition to the expense of transport and housing.

TA Experiences:

For all groups:
Due to test anxiety, he/she has been feeling increasingly uncomfortable, nervous, sick and shaky. Hisl Her stomach is upset, his/her heart beats very fast and he/she has trouble sleeping nearly every night. He/She cannot keep his mind on his/her studies or on the tests and keeps thinking about failure, forgetting everything he/she knows, not doing well and not being able to find further work or chances to study. He/She fears losing control, embarrassment and the judgment of others. He/She is afraid of not remembering in the closed book exams. Leaving things to the last minute also increases his / her stress. Harry/ Mona/ Ahlam is worried about the impact of test anxiety on his life, studies, and mental health.

- Do you think Harry/ Mona/ Ahlam suffered from these symptoms?

- What other TA symptoms or experiences could Harry/ Mona/ Ahlam have?
- What do you think may have caused Harry/ Mona/ Ahlam to feel stressed and anxious during examination periods? How? Why?
- Why do you think Harry/ Mona/ Ahlam feels anxious about exams?

Mesosystem/exosystem factors

For all groups:
The emergence of COVID-19 has forced universities to shift to virtual teaching and assessment as an alternative to face-to-face methods.

British and international students in the UK:
In UK higher education, a taught master's degree typically takes one year and there is increasing use of assessment by coursework instead of conventional unseen exams. Assessments are designed to assess many skills and reflect independent learning and various teaching methods. He/She is always nervous/stressed about university tests and exams even if he has prepared well and his stress increases when he/She knows that the test is all short answers or essay questions. ***In her previous studies, he used to rely on memorization and rote learning rather than critical thinking and developing interpretation and application skills, which characterize the UK education system. (for international students)***

For local Saudi:
Ahlam used to rely on memorisation and rote learning rather than critical thinking in her studies. The traditional method of assessment is written examination, having to answer questions that do not measure understanding but the ability to memorise and list also increases her stress about exams.

- What about the methods teachers used in teaching, do you think they might cause TA for Harry/Ahlam/Mona? How? Can you give an example?
- Do you think the learning approaches used by Harry/Ahlam/Mona may cause TA? How? Can you give an example?
- Do you think Harry's/Mona /Ahlam view of the importance or difficulty of exams might be related to his/her experience of TA?
- Do you think the differences between undergraduate and postgraduate assessment types, the ways of learning or the ways of teaching cause TA? How about the home assessment type and host? How?

For All groups:
Harry's parents and his social circle have high expectations of success.

- Do you think that Harry's anxiety about exams relates to his culture? (e.g., society, parent, family, peers)
- What are these cultural factors? How? Why?

6-Coping strategies: (10 minutes)

To combat his/her fear and anxiety about tests, he has talked to other students about how they prepare and has taken anxiety medication before and during tests. However, he/she has never asked for help from psychological counselling services or shared his/her fears with friends. He/she has talked to close friends who have had the same fears and has used ***religious strategies*** *to reduce his/her anxiety. (Religious strategies for Saudi students)*

- What do you think about Harry's coping strategies? (effective, how, why)
- Why might he/she not go to counselling services?
- How do you deal with stress during exam periods? (what/how do you use them, if not why?)

Clean-up question:

Is there anything else you would like to share?

A. 9 Arabic Interview Guide

أسئلة المقابلة

1. **في البداية، هل يمكن أن تخبرني قليلاً: (5 دقائق)**
- عن عمرك
- عن مجال دراستك
- عن تخصصك
- كيف ترى تجربتك في دراسة الماجستير؟ (هل تستمتع بدراسة تخصصك؟)
- هل يمكنك وصف تجربتك في مرحلة الدراسة/التقييم أثناء دراسة الماجستير (كيف تم تقييمك؟ يرجى ذكر: نوع التقييم الذي تم استخدامه، وهل كانت أنواع التقييم هذه مشابهة أو مختلفة عن أنواع التقييم التي مررت بها من قبل وأين (في أي بلد) ومتى (أثناء دراسة البكالوريوس / أو الدراسات العليا السابقة)؟

2. **تجربة قلق الاختبار (20 دقيقه)**
- ماهي تجربتك مع قلق الاختبار؟

3. **فضلا اختر ثلاث صور تمثل أهم تجاربك لقلق الاختبارات كطالب دراسات عليا:**
- لما اخترت هذه الصور؟
- فضلا صِف ما هو موجود في الصور؟
- كيف هذه الصورة مرتبطة بتجربتك مع قلق الاختبارات؟ (لماذا)
- ما الذي جعلك تشعر بهذه الطريقة؟ (التقييم)

4. **مصادر قلق الاختبار (30دقيقه)**
- ماهي مصادر ومحفزات قلق الاختبار لديك (وضح، كيف، لماذا)
- هل تعتقد ان الطريقة التي تم بها تقييمك خلال دراسة الماجستير مرتبطه بتجربتك مع قلق الاختبار؟ (كيف؟ وضح)
- ما هي خصائص الاختبارات التي يمكن أن تسبب قلقا أكثر من أنواع التقييم الأخرى؟ (مشاعرك/ استعدادك)
- لو كان لك الخيار، فما نوع التقييم الذي تفضله؟ (لماذا؟)

5. **الآن سأخبرك قصة عن... ثم نناقش وجهة نظرك ورأيك في القصة.**

<u>مقدمة عن القصة:</u>

للسعوديين والبريطانيين (محليين)

هاري/احلام طالب دراسات عليا بريطاني/سعودي يدرس في إحدى جامعات المملكة المتحدة/السعودية. وقد قرر أن يواصل دراسته في بلده لأسباب عديدة مثل تكلفة المعيشة، وأن يكون قريبًا من دائرته الاجتماعية الحالية، وكذلك بسبب معرفته بثقافة بلده.

للطلاب الدوليين:

منى طالبة دراسات عليا دولية تدرس في إحدى جامعات المملكة المتحدة. كانت متحمسة للدراسة في المملكة المتحدة بسبب القيمة العلمية للشهادة الجامعية من المملكة المتحدة، وجودة التدريس العالية ونظام التعليم، بالإضافة إلى الدعم الأكاديمي والإداري الذي تقدمه تلك الجامعات. لذلك قررت الانتقال إلى المملكة المتحدة للدراسة بالرغم من اختلاف اللغة والثقافة ونظام التقييم. هي تعاني من البُعد عن العائلة والأصدقاء، بالإضافة إلى نفقات النقل والسكن.

<u>تجربة قلق الاختبار:</u>

لجميع الطلاب:

بسبب قلق الاختبارات يشعر كثيرا بعدم الارتياح، وبالقلق، وبالمرض، والارتعاش. كما أنه يعاني من اضطرابات في المعدة وتسارع في نبضات القلب ويعاني من الأرق تقريبا في كل ليلة. هاري أيضا لا يستطيع التركيز على دراسته ولا على الاختبارات ويظل يفكر في الفشل وأنه سينسى كل ما يعرفه، لذا فهو غير ناجح في دراسته، ولن يستطيع العثور على المزيد من فرص العمل والدراسة. ويخشى فقدان السيطرة على دراسته والشعور بالإحراج وحكم الآخرين عليه. وهو دائمًا قلق بشأن الاختبارات الجامعية، حتى لو كان قد استعد جيدًا لها ويزداد قلقه عندما يعلم أن الاختبار عبارة عن أسئلة قصيرة أو أسئلة مقالية ومما يزيد من قلقه أيضا تأجيل أداء المهام إلى آخر لحظة. يشعر هاري بالقلق من تأثير قلق الاختبارات على حياته ودراسته وصحته النفسية

- هل تعتقد ان .... يعاني من هذه الأعراض؟
- ماهي الاعراض او التجارب الأخرى التي تعتقد ان هاري يعاني منها؟
- ما الذي تعتقد أنه تسبب في شعور () بالضغط والقلق خلال فترة الاختبارات؟ (وكيف؟)
- لما تعتقد ان ..... يشعر بالقلق من الاختبارات؟

عوامل سياقية تعليميه

لكل الطلاب

لكن ظهور جائحة كورونا أجبرت الجامعات على التحول إلى التدريس والتقييم الافتراضي كبديل لطرق العليم والتقييم التي تتم حضوريا

للبريطانيين والدوليين في المملكة المتحدة

عادة ما تستغرق دراسة الماجستير في التعليم العالي بالمملكة المتحدة عامًا واحدًا وهناك استخدام متزايد للتقييم من خلال المهام الدراسية (الواجبات) بدلاً من الاختبارات التقليدية غير المرئية. ويتم تصميم التقييمات لتقييم العديد من المهارات ولتعكس القدرة على التعلم الذاتي والعديد من طرق التدريس المختلفة الأخرى. وهو دائمًا قلق بشأن الاختبارات الجامعية، حتى لو كان قد استعد جيدًا لها ويزداد قلقه عندما يعلم أن الاختبار عبارة عن أسئلة قصيرة أو أسئلة مقالية. كانت تعتمد في دراساتها السابقة على الحفظ والتلقين بدلاً من التفكير النقدي وتطوير مهارات التفسير والتطبيق، التي تميز نظام التعليم في المملكة المتحدة.

للطلاب السعوديين (المحليين):

كانت أحلام تعتمد في دراستها على الحفظ والتلقين بدلاً من التفكير النقدي. ومع أن الطريقة التقليدية للتقييم هي الاختبارات الكتابية وخاصة مع اضطرارها على الإجابة عن أسئلة لا تقيس الفهم، بل تقيس القدرة على الحفظ والاستذكار.

- ماذا عن الأساليب التي يستخدمها المعلمون في التدريس، هل تعتقد أنها قد تسبب قلق الاختبار ل ...؟ كيف؟ يمكنك ان تعطي مثالا؟
- ماذا عن أساليب التعلم، هل تعتقد أنها قد تسبب قلق الاختبار ل ...؟ كيف؟ يمكنك ان تعطي مثالا؟
- هل تعتقد ان الاختلاف في التقييم وأساليب التعليم وأساليب التدريس بين الدراسة الجامعية والدراسات العليا قد تسبب قلق الاختبار؟ كيف؟

لكل الطلاب:

لدى والدا هاري ودائرته الاجتماعية توقعات عالية لنجاحه.

- هل تعتقد ان قلق ... من الاختبارات له علاقة بثقافته؟ (كالمجتمع والوالدين والعائلة والأصدقاء)
- ماهي العوامل الثقافية (كيف / لماذا)؟

6. استراتيجيات التكيف

وليتغلب هاري على خوفه وقلقه بشأن الاختبارات قام بالتحدث مع طلاب آخرين حول كيفية استعدادهم للامتحانات وبدأ يتناول أدوية للقلق قبل الاختبارات وأثناءها. ومع ذلك.. لم يطلب أبدًا المساعدة من الخدمات النفسية ولم يشارك أصدقائه مخاوفه. قامت بالتحدث مع صديقاتها المقربات اللاتي كان لديهن نفس المخاوف واستخدمن استراتيجيات دينية للتخفيف من القلق

- *ماهي وجهة نظرك عن استراتيجيات التكيف المتبعة في القصة؟ هل هي فعالة؟ كيف؟ لماذا؟*
- *لماذا لم يذهب الى خدمات الارشاد النفسي؟*
- *كيف تتعامل مع قلقك اثناء الاختبار؟ (ماهي الاستراتيجيات/ كيف تستخدمهم/ في حال عدم استخدام استراتيجيات التكيف لماذا)؟*

سؤال الختام

هل هناك ما ترغب مشاركته وإضافته في نهاية هذه المقابلة؟

A. 10 Instructions when taking photographs.

University of Glasgow | School of Psychology

Instructions when taking photographs.

A qualitative study of the perceptions and experiences of post-graduate taught students towards test anxiety in the UK and Saudi Arabia

My name is Wafa Khalaf Alshammari, and my study is being conducted under the supervision of Dr Maxine Swingler, Prof Stephany Biello, and Dr Dely Elliot.

Thank you very much for agreeing to take part in our research. In compliance with the ethical use of visual images for research purposes, we would like all participants to take the following points into account when taking photographs. Doing so will enable the research team to use the photographs not only during interviews, but also for publication purposes.

Our research employs the visual metaphor technique, which is aimed at encouraging participants to reflect on their experiences. Photographs play a twofold function: a) to inspire reflection among participants when visually or symbolically representing their perception of their own experiences of test anxiety (TA) as post-graduate taught students in UK and SA universities, and b) to serve as stimuli/drivers during research interviews.

Instructions when taking photographs.

We would like you to reflect on your experiences with TA during your postgraduate taught studies. Consider taking photographs (minumum of three photos within a period of two weeks) which you feel represent aspects of your experiences with TA during your postgraduate studies. These could be symbolic representations of objects, places, or anything that you feel is important and linked to your TA experiences.

Please use your own discretion when taking photos. Please take photographs of items that you consider meaningful to your experiences with TA; it doesn't matter how 'insignificant' it appears to be at first sight.

- Always aim to take photographs in public spaces or places where you are allowed to take photographs.

- Consider taking ‘no faces’ photographs where people are not recognisable in the photograph by focusing on a body part, e.g. a set of hands or feet, or photos taken in such a way that the identity of the photo subject is concealed, e.g. a photo taken from the back or a photo taken at a great distance.

Please do not take photographs of items categorised as ‘artistic works’, e.g. paintings, cartoons, sketches, photographs and moving images such as films.

A. 11 Demographic Information of Participants for Interviews

groups	Pseudonym	gender	age	Nationality
British students at UK universities	Sara	Female	24	Local British
	Nona	Female	38	
	Andrew	Male	24	
European in the UK universities	Ana	Female	42	French
	Paul	Male	37	Dutch
Saudi student at Saudi universities	Mona	Female	25	Local Saudi
	Abdullah	Male	30	
	Ahmed	Male	33	
	Ahlam	Female	36	
	Khalid	Male	35	
Eastern International Students	Kelly	Female	23	Chinese
	Aliyah	Female	42	Pakistani
	Majid	Male	30	Saudi
	Yusef	Male	25	Lebanese
	Diyala	Female	30	Saudi

A. 12 Consent Form for Online Survey

University of Glasgow | School of Psychology

Consent Form

Title of Project: Test anxiety, Procrastination, Depression, Anxiety and Sleep quality among post graduate taught students in the UK and Saudi Arabia, and their relationship to academic performance.

PROJECT INFORMATION: This study is part of a PhD project being conducted by Wafa Alshammari, a student of Psychology at the University of Glasgow. The supervisors of the project are Dr Maxine Swingler and Prof Stephany Biello

Purpose of the research: This a cross cultural comparative study which aims to investigate the level of test anxiety, depression, anxiety, procrastination and sleep quality among post graduate taught students in the UK and Saudi Arabia, and their relationship to academic performance.

Name of Researcher (s): Wafa Alshammari
If you agree to participate in this study, then please read the following statements and sign your name below to indicate your consent.

- I have read the Information Form for participants, so therefore understand the procedures, and have been informed about what to expect.
- I agree to participate in this study.
- I understand that my participation in this study is voluntary, and that I can withdraw from the study, at any time and for any reason, without having to give a reason to the researcher;
- I understand that I may omit any questions that I would prefer not to answer.
- I understand that my participation in this project is solely for the purposes of research, and is in no way an evaluation of me as an individual.
- I understand that any information recorded in the investigation will be made and kept anonymous, will remain confidential, and no information that identifies me will be made publicly available.
- I understand that I can contact the researcher(s) for this project by e-mail to receive more information and/or a summary of the anonymised group results.
- I confirm that I agree to the way my data will be collected and processed, and that data will be stored up to 2028 in University archiving facilities/password protected computer, in accordance with relevant data protection policies and regulations. The data will be destroyed by [2028].
- The results will only appear in group form, and individual participants will not be identified.
- There are no risks involved in participation in this study.
- The study complies with ethical regulations specified by the British Psychological Society.
- I have the right not to answer any questions that make me uncomfortable.
- The procedure involves filling an online survey that will take approximately 10 minutes.

❖ If you agree to take part in the online survey, please select agree.
❖ If you disagree with taking part in the online survey, please select disagree.

A. 13 Consent Form for Qualitative Interviews

University of Glasgow

Consent Form (set up on Microsoft Forms)

Title of Project: A qualitative study of the perceptions and experiences of post-graduate taught students towards test anxiety in the UK and Saudi Arabia

Name of Researcher: Wafa Alshammari

If you agree to participate in this study, then please read the following statements and indicate your consent.
I confirm that I have read the Information Form for the above study and understand the procedures. I have been informed about what to expect and have had the opportunity to ask questions.

I agree to participate in this study on perceptions and experiences of test anxiety amongst post-graduate taught students in the UK and Saudi Arabia.

I understand that my participation in this study is voluntary, and that I can withdraw from the study at any time, without having to give a reason to the researcher, before the end of data collection and analysis, but not after the study report (thesis) has been written.

I understand that I may omit any questions that I would prefer not to answer.

I understand that my participation in this project is for the purposes of research and is in no way an evaluation of me as an individual.

I understand that my personal information and the recording of the interview will be made and kept anonymous and confidential, on a secure server accessible only by the researcher and supervisors, and no information that identifies me will be made publicly available. The video and audio recordings will be removed from OneDrive with two years from the date of data collection.

I understand that data will be safeguarded and stored to prevent identification of participants and photo subjects (i.e. if consent is limited to use of photos during interview only) arising from any aspect of the research.

I understand that I can contact the researcher by email to receive more information and/or to request the removal of my words from the transcript.

I understand that I can request an anonymised analysis of the interview.

I have read and understood the above and consent to participate YES/NO

In addition, I give consent regarding: (please tick all that apply)

My photographs being used during interviews.

Interviews being audio recorded.

Interviews being video recorded.

My photographs being used for wider public dissemination (in a research report, in book chapters, in academic journals, at conference presentations, in conference proceedings, in online research publications, teaching classes or lectures, podcast dissemination of findings)

Being referred to by a pseudonym in any publications arising from the research

Research data held for 10 years in accordance with the University Code of Good Practice in Research - http://www.gla.ac.uk/services/postgraduateresearch/pgrcodeofpractice/

I consent to transcript of my words with no identifying information being archived for future research and plagiarism checking with the write-up of this project YES/NO

I consent to a transcript of my words with no identifying information being shared on the Open Science Framework to facilitate future research YES/NO

A. 14 Consent Form for Photo Subjects

University of Glasgow | School of Psychology

Consent Form for Photo Subjects (set up in Microsoft Forms)

A qualitative study of the perceptions and experiences of post-graduate taught students towards test anxiety in the UK and Saudi Arabia

My name is Wafa Alshammari, and I am undertaking this study under the supervision of Dr Maxine Swingler, Prof Stephany Biello, and Dr Dely Elliot.

Please read the following statements:

I am 18 years old (or older) and I am able to give consent.

I give consent to be photographed as part of the research project titled 'A qualitative study of the perceptions and experiences of post graduate taught students towards test anxiety in the UK and Saudi Arabia'.

I consent to my picture being used as a stimulus for research discussion with the researcher.

I am aware and consent that my picture might be used for any of the following:

- in a research report
- in book chapters
- in academic journals
- at conference presentations
- in conference proceedings
- in online research publications
- teaching classes or lectures
- podcast dissemination of findings

I understand that data will be safeguarded and stored securely to prevent identification of photo subjects, if my consent is limited to use of photos during interview only.

I have read and understood the above and consent to participateYES/NO

I give consent regarding: ***(please tick all that apply)***

☐ My photographs being used during the interview

☐ My photographs being used for wider public dissemination (in a research report, in book chapters, in academic journals, in conference proceedings, at conference presentations, in online research publications, teaching classes or lectures, podcast dissemination of findings)

☐ Research data being held for 10 years in accordance with the University Code of Good Practice in Research http://www.gla.ac.uk/services/postgraduateresearch/pgrcodeofpractice/

Appendix B. Supplementary Materials for Chapter 4 (Systematic Review)

B. 1 Systematic Review: TA Scales, Number of Studies, and Countries and Years of Studies

Measure	**Author(s)**	***N***	**%**	**Countries**
Test anxiety inventory (TAI)	Spielberger (1980)	19	23.4	Australia (2010)
				Australia (2019)
				Canada (2015)
				Iran (2019)
				Israel (2008)
				Pakistan (2012)
				Serbia (2017)
				Turkey (2014)
				Turkey (2018)
				US (2001)
				US (2001)
				US (2002)
				US (2006)
				US (2010)
				US (2011)
				US (2012)
				US (2014)
				US (2018)
				US (2018)

German Test Anxiety Inventory (TAI_G)	Hodapp (1996), Hodapp et al. (1995)	3	3.7	Germany (2010) Germany (2019) Spain (2019)
Westside test anxiety scale (WTAS)	Driscoll (2007)	4	4.9	Bulgaria (2019) Pakistan (2012) Pakistan (2015) Saudi Arabia (2018)
Sarason test anxiety scale (STAS)	Sarason (1977)	6	7.4	Iran (2016) Iran (2018) Malaysia (2014) Pakistan (2012) Taiwan (2018) US (2006)
Academic Emotions Questionnaire (AEQ)	Pekrun et al. (2002)	2	2.4	US (2010) US (2012)
Cognitive test anxiety scale (CTAS)	Cassady and Johnson (2002)	8	9.8	US (2002) US (2002) US (2004) US (2004) US (2005) US (2015) US (2016) US (2018)
Motivated Strategies for Learning Questionnaire	Pintrich et al. (1993)	8	9.8	China (2017) India (2013)

(MSLQ)				Pakistan (2013) Slovenia (2007) Turkey (2017) US (2012) US (2013) US (2015)
State-Trait Anxiety Inventory (STAI)	Spielberger et al. (1983)	5	6.1	Japan (2006) Netherlands (2008) Taiwan (2013) Taiwan (2015) UK (2003)
Pre-examination Worry-Emotionality Scale (PEWES)	Morris et al. (1981)	3	3.7	Canada (2017) US (2012)
Evaluation Anxiety Scale (EVAN)	Thompson and Dinnel (2001)	3	3.7	UK (2007) UK (2013) UK (2014)
Revised Test Anxiety Scale (RTAS)	Benson and El-Zahhar (1994)	2	2.4	Ireland (2000) UK (2004)
Reaction to Tests (RTT)	Sarason (1984)	1	1.2	UK (2008)
Others:		4	4.9	
Test Anxiety Questionnaire (CAEX)	Valero (1999)			Spain (2016)
S_TAQ (unavailable)	Jacobs (1981)			Germany (2017)
Adjectives to assess state anxiety				

State Anxiety in Computing Situations (SACS) portion of the Computer Anxiety and Learning Measure (CALM)	McInerney et al. (1999)			US (2004)
Test anxiety scale (TAS_MA; unavailable)	Clinical Psychology Department, Manipal Academy of Higher Education			India (2018)
Standardized test				
Suinn test anxiety questionnaire (Suinn-TAQ)	Suinn (1969, revised Summer, 2002)	1	1.2%	Iran (2009)
Specialized:		4	4.9%	
Listening anxiety questionnaire (LTA)	Change (2008)			Taiwan (2008)
Mathematics Anxiety Rating Scale (MARS)	Richardson and Suinn (1972)			Malaysia (2015) US (2003)
Questionnaire for Test Anxiety in Computer-based Spoken English Test (TACBSET)	Yang Yanxia (2016)			China (2017)
Single item measures (SIM)		8	9.8%	Austria (2013) Ghana (2019) Pakistan (2008) Pakistan (2018) Saudi Arabia (2018) US (2007) US (2014) US (2015)

Total	81	100%

B. 2 The cross-reference analysis of TA scales

TA Measures	**STAS** (Sarason, 1977)	**TAI** (Spielberger, 1980)	**TAI_G** (Hodapp, 1995, 1996)	**MSLQ** (Pintrich, et al., 1993)	**PEWES** (Morris et al., 1981)	**CTAS** (Cassady and Johnson, 2002)	**WTAS** (Driscoll, 2007)	**RTAS** (Benson and El-Zahhar, 1994)	**AEQ** (Pekrun, 2002)	**RTT** (Sarason, 1984)
Study Numbers	**6**	**19**	**3**	**8**	**3**	**8**	**4**	**2**	**2**	**1**
	7.6%	**22.8%**	**3.8%**	**10.1%**	**3.8%**	**10.1%**	**5.1%**	**2.5%**	**2.5%**	**1.2%**
Worry (39)	**6 (16.2%)**	**4 (20%)**	**9 (30%)**	**1 (20%)**	**3 (30%)**	**4 (14.8%)**	**1 (10%)**	**4 (20%)**	**3 (23.07%)**	**4 (10%)**
Negative Consequences	**1**	**1**	**2**	**1**	**1**	**1**	**0**	**1**	**0**	**0**
During a test, I find m**yself thinking of the consequences of failing.**	1	1	1	1		1		1		
I think about what **will happen if I** don't do well.			1							
I feel that others will be **disappointed in me.**					1					
Self-Blame	**1**	**0**	**1**	**0**	**2**	**1**	**0**	**1**	**1**	**0**
After taking a test, I **always feel I could have** done better than I actually did.	1					1				
I am afraid that I **should have studied more** for this test.					1					
After an exam, I worry about **whether I did well enough.**								1	1	
I am satisfied with myself.			1							
I feel **regretful**					1					
Keep Worrying	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

As soon as an exam is over, I try **to stop worrying about it,** but I just can't.	1	1								
During exams, I sometimes **wonder if I'll ever get through school**.	1	1								
On exams I take the attitude, "If I don't know it now, there's no point in worrying about it".	1									
After a test, I say to myself, "It's over and I did as well as I could".										1
Worry about the unexpected	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
I worry that something might go wrong.			1							1
I worry before the test because I do not know what to expect.								1		
Worry about results	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**2**
I worry about my results.			1							
I am concerned about my grades.			1							
I worry whether I will pass/fail the exam.									1	2
I think that I will succeed.			1							
Other	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**
I lose **sleep** over **worrying** about examinations.						1				
If I were to take an intelligence test, I would **worry** a great deal before taking it.	1	1						1		
Worry that the exam is too difficult	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
I worry whether the **test** will be **too difficult.**									1	
I have the feeling **everything** is **so difficult** for me.			1							
Worry about performance not being good enough	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**
I ask myself whether my **performance will be good enough.**			1							

During important exams, I **think** that I am doing **awful or that I may fail.**							1			
I worry more about **doing well** on tests than I should.						1				
Emotion (tension) (53)	**8 (21.6%)**	**8 (40%)**	**6 (20%)**	**1 (20%)**	**3 (30%)**	**8 (29.6%)**	**1 (10%)**	**3 (15%)**	**7 (53.8%)**	**8 (20%)**
Feeling tension/panicky/fear	**7**	**7**	**6**	**1**	**3**	**4**	**1**	**3**	**4**	**8**
6. I get to **feel very panicky/jittery** when I have to take **a surprise exam**.	1	2			1				1	2
Finding unexpected questions on a test causes me to feel **challenged** rather than **panicky**.						1				
I tremble with **fear**.			1							
I have **an uneasy, upset** feeling before taking a final examination.	1		2	1	1				1	1
I start feeling **very uneasy** just before getting a test paper back.	1	1						1		1
I really don't see why some people get so **upset about tests**.	1									
It seems to me that **examination periods** should not be made such **intense situations**.	1									
While **taking examinations** I have an uneasy, upset feeling.		1	1							
Even when I'm well prepared for a test, I feel very **anxious** about it.	1	1								1
I **feel out of sorts** or not really myself when I take important exams.							1			
I am “uptight”/nervous.			1		1				1	
I feel anxious about tests.			1					1		1
During tests I feel very **tense.**		1						1	1	1
I am less nervous about tests than the average college student.						1				
I am more calm in test situations than the average college student.						1				
Tension affecting bodily symptoms										

I **freeze up** on things like intelligence tests and final exams.	1	1				1				1
Tension affecting cognitive abilities	**1**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**
During a course examination, I frequently get so **nervous** that I **forget** facts I really know.	1	1				1				
When I take a test, my **nervousness** causes me to make **careless errors.**						1				
At the beginning of a test, I am so nervous that I often can't think straight.						1				
My **mind goes blank** when I am pressured for an answer on a test.						1				
Tension/wanting to escape	0	0	0	0	0	0	0	0	3	0
I get so nervous I wish I could just skip the exam.									1	
I get so nervous I can't wait for the exam to be over.									1	
I am so anxious that I'd rather be anywhere else									1	
Preferences	**6 (16.2%)**	**1 (5%)**	**0**	**0**	**0**	**3 (11.1%)**	**0**	**0**	**0**	**1 (2.5%)**
I would rather **write a paper** than take an examination for my grade in a course.	1									
I think I could do much better on tests if I could **take them alone** and **not feel pressured by time limits**.	1									
I do well in speed tests in which there are time limits.						1				
I don't study any harder for final exams than for the **rest of my coursework.**	1									
If **examinations could be done away with**, I think I would actually learn more.	1									

I am a poor test taker in the sense that my performance on a test does not show how much I really know about a topic.						1				
I dread courses where the instructor has the habit of giving "pop" quizzes.	1									
The prospect of taking a test in one of my courses would not cause me to worry.						1				
I wish examinations did **not bother** me so much.	1	1								1
Bodily Symptoms (31)	**6 (16.2)**	**2 (10%)**	**2 (6.6%)**	**1 (20%)**	**2 (20%)**	**0**	**0**	**5 (20%)**	**3 (23.07%)**	**10 (25%)**
Headache	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**
I get a **headache** during an important test.								1		1
I get a **headache** before an important test.										1
IBS symptoms	**3**	**1**	**1**	**0**	**1**	**0**	**0**	**1**	**1**	**3**
My mouth feels dry during a test.								1		1
After important tests, I am frequently so **tense** my **stomach g**ets upset.	1									
During important tests I am so **tense** that my **stomach gets upset.**		1			1				1	1
I get "butterflies".			1							
I seldom feel **the need for "cramming" before** an exam.	1									
I feel the need to go to the toilet more often than usual during the test.										1
I **don't enjoy eating before an** important test.	1									
Vascular system	**3**	**1**	**1**	**1**	**1**	**0**	**0**	**1**	**2**	**3**
Before an important examination, **I find my hands or arms trembling**.	1							1	1	1
My hands often feel cold before and during a test.										1

While taking an important exam, I **perspire** a great deal.	1									
I sometimes feel my **heart bea**ting very fast during important exams.	1	1	1	1	1				1	1
Respiratory system	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
I have difficulty breathing while taking a test.								1		
I sometimes feel dizzy after a test.										1
Muscles	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
I become aware of my body during tests (feeling itches, pain, sweat, nausea).										1
While taking a test my muscles are very tight								1		
Interference/Irrelevant thinking (33)	**4 (10.8 %)**	**2 (10%)**	**5 (16.6%)**	**1 (20%)**	**0**	**1 (3.7%)**	**1 (10%)**	**7 (35%)**	**0**	**12 (30%)**
Things unrelated to course materials	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
During class examinations, I find myself thinking of **things unrelated to the actual course material**.	1							1		1
Unrelated events	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**
I think about current events during a test.								1		1
During tests I find I am distracted by thoughts of upcoming events.								1		1
Exam process/operations	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**2**
When I take a test, I think about items on other parts of the test I can't answer.				1						
While taking a test, I often think about how difficult it is.								1		1
During the test I think about how I should have prepared for the test.								1		
The thought, “What happens if I fail this test?” goes through my mind during tests.										1

Others	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
During tests, I wonder how the other people are doing.										1
Daydreaming	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**4**
I daydream/fantasise during tests.										2
My mind wanders during tests.										1
While taking tests I sometimes think about being somewhere else.								1		1
I find that my mind sometimes wanders when I am taking important exams.							1			
Symptoms related to interference	**3**	**2**	**4**	**0**	**0**	**0**	**0**	**1**	**0**	**2**
When taking a test, my emotional feelings do not **interfere with my performance**.	1									
My **concentration** is interrupted by **interfering thoughts**.			1							
I **forget** things because I am **too preoccupied with my personal** problems.			1							
Thoughts of doing poorly interfere with my performance on tests.	1	1								1
I am **preoccupied by other thoughts** which **distract me**			1							
Thinking about the grade I may get in **a course interferes** with my studying and performance on tests.	1	1						1		
Distracting thoughts keep “popping” into my head.			1							1
Nature of the person (trait)	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
I easily lose my **train of thoughts.**			1							
Lack of Confidence (31)	**3 (8.10 %)**	**2 (10%)**	**6 (20%)**	**1 (20%)**	**2 (20%)**	**10 (37.03%)**	**3 (30%)**	**2 (10%)**	**0**	**2 (5%)**
Confidence in ability	**3**	**2**	**6**	**0**	**2**	**5**	**2**	**1**	**0**	**0**
If I knew I was going to take an intelligence test, I would **feel confident and** relaxed.	1	1	1			2				

Getting good grades on one test doesn't seem to increase **my confidence on the second**.	1									
I **feel I may not do as well on** this test as I could.					1					
I **do not feel very confident** about my performance on this test.					1					
During tests, I have the feeling **that I am not doing well**.						1				
I seem to **defeat myself** while working on important tests.	1	1				1		1		
When I study, I worry that I will **not remember the material** in the exam.							1			
I **worry** so much before a major exam that I **am too worn out to do my best on the exam**.							1			
I worry about whether **I can cope with** being examined.			1							
During tests, the thought frequently occurs to me that I may not be too bright.						1				
I think about my abilities.			1							
I know that **I can rely** on myself.			1							
I am convinced that I will do well.			1							
I have **faith in my own performance**.			1							
Confidence in ability to take tests	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**0**
I **am not good at** taking tests.						1				
I do not perform well on tests.						1				
I feel that whatever I do will not be good enough.							1			
Comparison with others	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**1**	**0**	**2**
I have less **difficulty** than the average college student in **getting test instructions** straight.						1				

I have less difficulty than the average college student in **learning** assigned chapters in textbooks.						1				
When I take a test, I think about how poorly/brighter I am doing compared with other students.				1		1		1		2
Depression (1)	**1 (2.7%)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
I usually **get depressed after taking a test**.	1									
Cognitive Capacity (9)	**1 (2.7%)**	**1 (5%)**	**1 (3.3%)**	**0**	**0**	**1 (3.7%)**	**3 (30%)**	**0**	**0**	**2 (5%)**
The harder I work at taking a test or studying for one, the **more confused I get.**	1	1								1
The closer I am to a major exam, the harder it is for me to concentrate on the material.							1			
I lose focus on important exams, and I cannot remember material that I knew before the exam.							1			
I finally remember the answer to exam questions after the exam is already over.							1			
When I first get my copy of a test, it takes me a while to calm down to the point where I can begin to think straight.						1				
While taking a test, I often don't pay attention to the questions.										1
I feel overwhelmed.			1							
Perception of Importance (3)	**0**	**0**	**2 (6.6%)**	**0**	**0**	**1 (3.7%)**	**0**	**0**	**0**	**0**
I think about how important the examination is for me.			1							
I feel under a lot of pressure to get good grades on tests.						1				

I think about how important it is for me to receive a good result.			1							
Other	**1 (2.7%)**	**0**	**0**	**0**	**0**	**0**	**1 (10%)**	**0**	**0**	**0**
The university should recognize that some **students are more nervous than others about tests** and that this affects **their performance.**	1									
I struggle **with writing assignments** or avoid them as long as I can.							1			

Appendix C. Supplementary Materials for Chapter 5 (Quantitative Study)

C. 1 Main sources of TA

Group	*N* (%)	Quotes: sub-categories
Individual factors (219/60%)		
	103 (38.28%)	**Fear of failure**
Local British	59 (48.82%)	"Worrying about failure"
Local Saudi	25 (28%)	"Failure in answering the questions"
Eastern international	10 (37.03%)	"Obtaining a bad mark"
European international	9 (33.33%)	"Fear of failure"
	45 (16.72%)	**Physical and mental health**
Local British	29 (23.01%)	"lack of sleep", "panic and stress"
Local Saudi	5 (5.6%)	"Sleep difficulties"
Eastern international	5 (18.51%)	"Stress"
European international	6 (22.22%)	"Anxiety, stressing about exams and life"
	33 (12.26%)	**Lack of confidence**
Local British	12 (9.52%)	"Forgetting things I knew"
Local Saudi	16 (18%)	"Afraid of not remembering"
Eastern international	3 (11.11%)	"I will forget the information I have studied"
European international	2 (7.40%)	"I will forget everything"
	26 (9.66%)	**Perception of lack of preparation**
Local British	15 (11.90%)	"I always feel underprepared"
Local Saudi	5 (5.61%)	"Having no good preparations for studying"
Eastern international	0 (0%)	
European international	6 (22.22%)	"Not confident enough in my preparation"
	6 (2.23%)	**Procrastination and avoidance**
Local British	3 (2.38%)	"Leaving things too late"

Local Saudi	1 (1.12%)	"Sleeping too much to avoid studying"
Eastern international	2 (7.40%)	"Watching TV"
European international	0 (0%)	
	6 (2.23%)	**Financial difficulties**
Local British	4 (3.17%)	"Lack of money"
Local Saudi	0 (0%)	
Eastern international	1 (3.70%)	Expenses of transportation, food, housing
European international	1 (3.70%)	"Finding a job to graduate"

C. 2 Main sources of TA

Group	**N (%)**	**Quotes: Sub-categories**
Mesosystem (133 / 36.5%)		
	49 (18.21%)	**Time pressure**
Local British	18 (14.28%)	"No time for all of it"
Local Saudi	26 (29.21%)	"Time tightness"
Eastern international	2 (7.40%)	"If the time won't be enough to do the whole test"
European international	3 (11.11%)	"Not having time to complete my tasks"
	29 (10.78%)	**Course load**
Local British	8 (6.34%)	"The amount of work needing done"
Local Saudi	16 (18%)	"Curriculum length"
Eastern international	3 (11.11%)	"The academic pressure due to assignments, quizzes, midterms, final exams"
European international	2 (7.40%)	"Workload"
	25 (9.29%)	**Type of assessment and questions**
Local British	13 (10.31%)	"Exams and presentation"
Local Saudi	9 (10.11%)	"Essay questions"
Eastern international	3 (11.11%)	"Exams"
European international	0 (0%)	

	16 (5.94%)	**Negative teacher characteristics**
Local British	1 (0.79%)	"My advisor really pressuring me"
Local Saudi	14 (15.73%)	The professor's personality and his/her bad attitude.
Eastern international	0 (0%)	
European international	1 (3.70%)	"Teachers can be very subjective"
	11 (4.08%)	**Marking and evaluation criteria**
Local British	2 (1.58%)	"Everything weighing on one exam makes me more worried"
Local Saudi	7 (7.86%)	"Unequal marks between exam questions"
Eastern international	0 (0%)	
European international	2 (7.40%)	"The percentages of the grades because we only get one or two options to get the whole grade"
	3 (1.11%)	**Test environment**
Local British	3 (2.38%)	"Physically being in the formal exam room"
Local Saudi	0 (0%)	
Eastern international	0 (0%)	
European international	0 (0%)	

C. 3 Coping strategies used to reduce TA.

Group	N (%)	Quotes: Sub-category	Main Category
	57 (35.18%)	**Breathing, yoga and meditation**	**Relaxation**
Local British	41 (40%)	"Breathing techniques"	
Local Saudi	6 (24%)	"I practise breathing and meditation"	
Eastern international	5 (27.7%)	"Breathing practice"	
European international	5 (31.2%)	I have done yoga	
	32 (19.7%)	**Preparation and planning**	**Personal organization**
Local British	18 (17.47%)	"Being more prepared, e.g. using detailed study plans and to do lists to ensure that all of the areas I desire to prepare for I have covered"	
Local Saudi	10 (40%)	"I arrange my time, make my own summaries"	
Eastern international	2 (11.11%)	"Divide the material in 3 days before the test, trying to plan for studying from the first day in the semester"	
European international	2 (12.5%)	"Start rather early"	
	28 (17.28%)	**Exercise**	**Physical activities**
Local British	13 (12.62%)	"Exercise".	
Local Saudi	6 (24%)	"Walking"	
Eastern international	4 (22.22%)	"Walking, cycling, dancing"	
European international	4 (25%)	"Exercises"	
	22 (13.58%)	**Positive self-talk**	**Self-talks and beliefs**

Local British	9 (8.73%)	"I tell myself that it does not matter if I fail the degree, that I will still be able to find work regardless"	
Local Saudi	8 (32%)	"I convince myself that the test is simply to assess my skills and intellectual ability in one aspect"	
Eastern international	5 (27.7%)	"Remember the past and how anxiety didn't affect or change my marks"	
European international	0 (0%)		
	20 (12.34%)	**Take a break**	**Distraction**
Local British	9 (8.73%)	"Reading non-study books"	
Local Saudi	3 (12%)	"I prefer taking a long break for a day, for example, if I have a chance to go to my favourite place for relaxation like cafes"	
Eastern international	6 (33.33%)	"Playing or watching"	
European international	2 (12.5%)	"I often take refuge in video games and cooking"	
	7 (4.32%)	**Counselling services, and psychotherapy**	**Psychological and medical treatment**
Local British	5 (4.85%)	"University MH counselling service"	
Local Saudi	0 (0%)		
Eastern international	0 (0%)		
European international	2 (12.5%)	"Counselling"	
	9 (5.55%)	**Medication**	
Local British	9 (8.73%)	"I have taken anxiety medication before and during tests"	
Local Saudi	0 (0%)		
Eastern international	0 (0%)		

European international	2	Take medication	
	3 (1.85%)		**Faith in God**
Local British	0 (0%)		
Local Saudi	2 (8%)	"Reliance on God"	
Eastern international	1 (5.55%)	"Reading Quran (holy book) before having exam"	
European international	0 (0%)		
	35 (21.60%)		**No coping**
Local British	28 (27.18%)	"None used"	
Local Saudi	2 (8%)	"I haven't used"	
Eastern international	2 (11.11%)	"None"	
European international	3 (18.75%)	"Nothing"	

Appendix D. Supplementary Materials for Chapter 6 (Qualitative Interview)

D. 1 Quotations for Physical Symptoms

Stomach does not feel right

"and I could also feel there something around my stomach doesn't feel right, probably just some trampling there." (Kelly, Chinese, International)

*"I think in preparation for it and actally right before it or sort of, it's like right before you're about to do it is like the maximum nerves, so preparing for it, you start to have the butterflies in your **stomach**." (Sara, Local, British)*

Stomach pain

"Like what I have already told you, stomach pain and especially mood changes. Even my family have noticed my mood changes." (Muna, Local, Saudi)

"It may be (a type of) panic or stomach pain (with a smile) especially when exam time gets closer." (Muna)

"I feel bin in my stomach." (Majid, Saudi, International)

Avoiding eating

*"…and I **cannot even eat**, I don't feel that I, I want to eat before the exam." (Diyala)*

*"So before an exam I would have like **a stomach ache** I could, I would **not be able to eat**, hm, I would feel needing to go to the bathroom. (Laugh) But yes, I and this is something I've never been able to like stop." (Anna, French, international)*

*"My mood would become very bad, not have an **appetite** to eat and all because of the exam. My anxiety would increase as we get closer and closer to the date of the exam." (Ahmad)*

"I didn't eat a lot during the exams." (Majed, Saudi, International)

Eating too much

*"One of my behaviour is, is **actually going to eat** and I actually **gain weight** during my preparation for the exam, and and this has been something even in my bachelors, not just my masters. I'd always like I, I'd, I'd increase my **eating habits** so I eat more during the preparation to an exam, and this I'd have to say, say how it has to be involved with, with TA with test anxiety because food in away like it, **it calms you down**." (Yusuf, Lebanese, international)*

Pale pallor

"…and all my friends told me that your face is change to to yellow. Yeah, that's it." (Diyala, Saudi, international)

Sweating

*"I felt I was **sweating**. I felt really negative." (Nona, Local, British)*

*"…something **when your heart starts feeling of worry** and in your heart just starts **pounding really hard** and your hands start sweating and you feel your throat is dry." (Aliyah, Pakistani, International)*

*"…you start to have the **sweaty palms**, you shaken, the the rumination." (Sara, Local, British)*

Pounding heart and adrenaline

"So I think during actually, I feel like your adrenaline sometimes kicks in and depending on the situation and it really is a roll of the dice…" (Sara, Local, British)

"…a bit panicked, uh, like the heart pounding." (Anna, French, International)

*"…something **when your heart starts feeling of worry** and in your **heart just** starts **pounding really hard** and your **hands start sweating** and you feel your **throat is dry**." (Aliyah, Pakistani, International)*

*"it feels like **palpitations** or kind of, just a bit kind of on edge, but I don't think anything too serious physically. , the **panic** that it wasn't the quality of my work and it's so kind of **downward spiral**, from there." (Andrew, Local, British)*

Feeling dizzy

*".I used to go absent from many exams or get to the **exam and feel dizzy**. That is the negative effects of test anxiety." (Ahlam, Local, Saudi)*

Warmth

"Uh-huh, I would feel very warm." (Kelly, Chinese, International)

"I feel I feel that I'm warm like a fever." (Diyala, Saudi, International)