e-Journal of Business Education & Scholarship of Teaching
Vol. 18, No. 1, 2024, pp: 21-28.
ISSN: 1835-9132

Exam Anxiety: A Review including Assessment Alternatives to Summative Exams

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Abstract

This paper presents a review of the literature pertaining to exam anxiety, highlighting findings from empirical studies, theoretical frameworks, and practical strategies. Exam anxiety is a pervasive issue affecting students worldwide, impacting academic performance and psychological well-being. This review explores the causes, manifestations, and consequences of exam anxiety, and evaluates existing interventions. By examining a diverse range of scholarly works, this paper seeks to contribute to a deeper understanding of exam anxiety and offers insights for educators as well as students. The paper also provides a brief list of alternative forms of summative assessment that have the potential to alleviate exam anxiety.

Key words*: Exam anxiety; test anxiety scales; assessment evaluation.*

JEL Classification: I21
PsycINFO Classification: 3550
FoR Code: 1303; 1701
ERA Journal ID#: 35696

Introduction

Anxiety is an emotion characterized by feelings of tension, worried thoughts, and physical changes like increased blood pressure (Barlow, 2000; APA - anxiety). Anxiety disorders are considered to be heterogeneous, presenting distinct and overlapping characteristics as recognised in the various editions of the DSM (Biederman, et al., 1994: American Psychiatric Association 1994). Thus, fear and anxiety tend to overlap across various anxiety disorders with worry and stress prompting emotional responses (Dunn, 1991). Anxious individuals are considered to have difficulty in coping with temporary adverse events (Craske et al., 1995). Exam anxiety for example, is a well-documented psychological phenomenon characterized by heightened stress and fear leading to a perception or anticipation of adverse outcomes such as occurs when an individual is confronted with the thought of an exam. The panic that follows has been characterised as resulting from the extent of learned fear (Dunn, 2020), hence the degree of fear contributes to the level of anxiety. Exam anxiety is a common experience among students and depending upon the level of anxiety can significantly impact academic outcomes as well as mental health (Foa et al, 1992).

Exam Anxiety, also referred to as "Test Anxiety" in the literature, is exhibited as a state of uneasiness, worry or feelings of uncertainty about an impending summative assessment. Summative assessments are intended to determine a level of knowledge and thus confirm a grade for a student as distinguished from formative assessment which is more concerned with providing a learning outcome than a mere grade. Formative assessment informs the student of where he or she has to improve as distinct from summative assessment which is not concerned with informing the student of anything other than the judgement of their grade. In regards to exam anxiety prior research has shown that a high level of exam anxiety can lead to poor academic achievement (Jing, 2007; Mondal, Ghosh, & Das, 2013; Austin, Partridge, Bitner and Wadlington, 1995; Cassady & Johnson, 2002). Anxiety is an emotional response to some event or situation that can manifest in the form of physical or mental outcomes.

Literature Review

Anxiety research has typically divided anxiety into two categories based on whether researchers are interested in long-lasting or transient anxiety: trait anxiety and state anxiety (Spielberger, Gorsuch, & Lushene, 1970, Spielberger, Sydeman, et al, 1999). Trait anxiety refers to either an individual's general disposition to become anxious or typical level of anxiety, whereas state anxiety is usually defined as a person's level of anxiety over relatively short time frames (seconds, minutes, and hours).

Research by Chatterjee and Kacker (2020) indicated that personality type of an individual can play a major role in the level of a person's anxiety level. They reported that it was not just the type of personality but also the approach to studying of an individual that could influence the level of anxiety experienced.

Individual factors, such as personality traits and cognitive abilities, play a crucial role in the development of exam anxiety (Spielberger, 2013; Zeidner, 2014). Research has suggested that between 15% to 22% of students have exhibited high levels of exam anxiety (Putwain & Daly, 2014; Thomas et al., 2018).

The testing environment has been shown to be a contributing factor to the experience of exam anxiety with factors such as exam format and time constraints being the most predominant (Cassady & Johnson, 2002; Putwain, 2007).

Sociocultural influences, such as societal expectations and family pressure have been shown to contribute as an underlying variable for the prevalence of exam anxiety in some cases (Hembree, 1988; Pekrun, 2006).

Cognitive manifestations of exam anxiety are often associated with negative thoughts, impaired concentration, and memory lapses (Eysenck, 2019; Hembree, 1988).

Emotional manifestations of exam anxiety have been attributed to symptoms such as feelings of fear, apprehension, and irritability (Sarason, 1984; Zeidner, 1998).

Behavioural consequences can manifest as maladaptive coping mechanisms, such as avoidance behaviors and procrastination, are common manifestations of exam anxiety (Cassady & Johnson, 2002; Vitasari et al., 2010).

Consequences of Exam Anxiety has consistently been linked to lower test/exam scores and general academic underperformance (Chapell et al., 2005; Hembree, 1988). Research has revealed that the emotional influence can have an adverse effect on both high achievers and low achievers (Chapell et al., 2005; Khalaila, 2015).

Long-term consequences of exam anxiety can have psychological consequences which may include increased susceptibility to stress-related disorders and decreased self-esteem (Chapell et al., 2005; Zeidner, 2014).

There are numerous instruments which have been developed to identify the existence and level of exam anxiety in individuals. They have at the heart of their coverage certain areas that are consistent in particular those of "worry" and "emotionality" the most common instruments are:

Test Anxiety Questionnaire (TAQ) (Mandler and Sarason, 1952)

This contains 42 items measuring students" own experiences before and during the examinations. The numbers of items in this questionnaire are 36. The students have to respond to all the items by placing a mark along a 15 centimeter line which is indicated by the midpoint and the endpoint.

Test Anxiety Scale (TAS) Srason (1958)

This instrument consisting of 21 items in which the students have to respond to the items by circling true or false.

Achievement Anxiety Test (AAT) Alpert and Haber (1960)

This instrument consists of 2 scales and 28 items. These scales are: a 10-item Debilitating Scale (AAT-) and a 9-item Facilitating Scale (AAT+). The remaining 9-items are neutral. The subjects have to respond on a 5-point scale.

Suinn Test Anxiety Behavior Scale (STABS) Suinn (1969)

This instrument consists of 50 items. The behavioral situations, which can cause test anxiety, are described in these items. Students have to respond to these 50 items on a 5-point scale.

Worry-Emotionality Questionnaire (W-E Q) Liebert and Morris (1969)

This instrument consists of 10 items which have been modified for the immediate feelings and responses of the students. This instrument contains 5-items for Worry Scale and 5-items for Emotionality Scale.

Inventory of Test Anxiety (ITA) Osterhouse (1970)

The Instrument contains two subscales with 16 items: the Worry and Emotionality Subscales. Each scale is composed of 8 items.

State Test Anxiety Scale (STAS) Hong (1998)

It consists of Worry and Emotionality Subscales. Both of which require responses on a 4-point Likert-type scale. The range of score is from 4 to 16. The cognitive component of anxiety is Worry Subscale and physiological component is Emotionality Subscale in this instrument.

Test Anxiety Inventory for Children and Adolescents (TAICA) Lowe and Lee (2004)

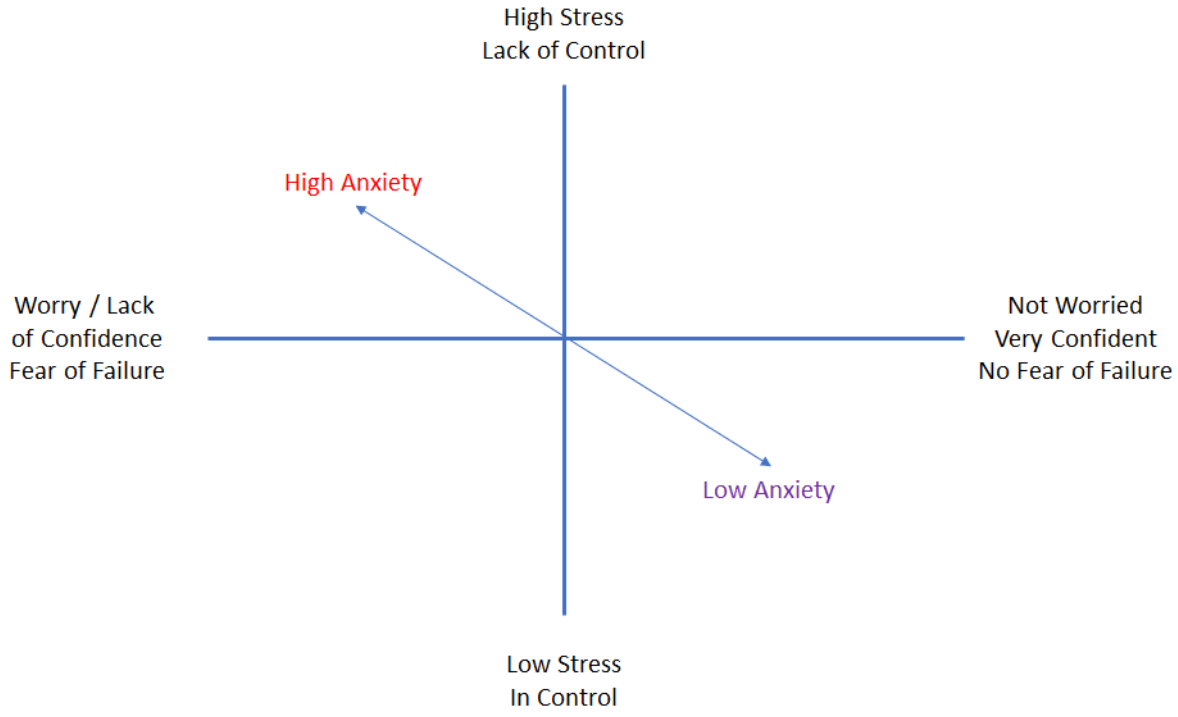
This consists of 45 items and six scales. These six scales are Cognitive Obstruction, Physiological Hperarousal, Social Humiliation, Worry, Performance Enhancement and a Lie Scale.

Test Anxiety Inventory (TAI) Spielberger (1980)

This consists of 20 items. According to Chapell, Blanding, Silverstein, Takahashi, Newman, Gubi, and McCann (2005), the Test Anxiety Inventory is the most important and widely used instrument for the measurement of high school and college students test anxiety.

Taking into consideration the issues and concepts raised by in the literature and the variables identified in the instruments the following matrix has been developed. The main constructs have been refined to construct the quadrants that lead to the placement of "high anxiety" and "low anxiety". The constructs chosen are those that are more commonly associated with exam anxiety and by implication the relevance that "high anxiety" becomes representative of "high exam anxiety" and vice-a-vera "low anxiety" is consistent with "low exam anxiety".

Diagram 1.
Basic Matrix of Anxiety



Methods of Assessing Learning

Exams are traditionally considered to be the most reliable, equitable and justifiable form of summative assessment specifically for the purpose of making a judgement enshrined by a set of criteria and standards (Taras, 2009). *Summative assessment* is considered to be an *assessment of learning* as distinct from *formative assessment* which is by contrast an *assessment for learning* (McCarthy, 2015). In effect formative assessment requires the provision of feedback intended to support and provide guidance in the continuation of the learning process. Whereas summative assessment is about evaluating the extent of learning, at a specific point in time with no continuation – and is done for the purpose of awarding a grade or certification for which the only feedback is the grade or score achieved – there is no further learning involved (Glazer, 2014).

Providing academic support, such as study skills workshops, time management training, and mentoring support structures can have a positive impact students' confidence and reduce exam anxiety (Cassady & Johnson, 2002; Hembree, 1988). However, there are alternative approaches to assessment of learning (Boulet,et al., 2011) and these have the potential to either replace the traditional exam structure or be useful as additional forms of arriving at a summative assessment score or grade. For the purpose of expanding the awareness these include but are not limited to the following identified in Table 1:

Table 1.
List of Alternative Forms of Assessment to Summative Exams

Methods of Assessment	***References***
Viva Voce (Oral)	Butler & Wiseman (1993}
Paired Adaptive Tests	Seeley, Andrade & Miller (2018); Ling, et al. (2017)
Simulation/Virtual Reality	Boulet, et al. (2011)
Multiple Choice	Roediger & Marsh (2005); McKenna (2019).
True / False	Brassil & Couch (2019); Haffejee & Sommerville (2014)
Pre-identification	Van Etten, Freebern & Pressley (1997)
Allow Note sheets	Santosa (2022); Gharib & Phillips (2013).
Allow Extra time	Spenceley & Wheeler (2016); Lovett (2010).
Allow a companion / a scribe	Whiting (2000); Kendall (2016).

Summary

Exam anxiety is a well-documented psychological phenomenon characterized by heightened stress and fear all seemingly due to the anticipation of exams. It is a common experience among students although the level of anxiety can vary as can the impact on academic outcomes and mental health of an individual. Future research needs to pay greater attention in testing the benefits of the alternative forms of summative assessment on exam anxiety.

Whilst the literature is replete with studies employing the different testing instruments to identify the existence of individuals with varying levels of exam / test anxiety the application of such instruments for every cohort of students is seemingly impractical. Though it is necessary to make the distinction when conducting research to evaluate the relevance of the different methods of assessment for individuals suffering from exam anxiety future research could serve to provide evidence on the most practical mix of assessment methods to avoid disadvantaging not just those individuals but the rest of the students in the cohort.

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