

Experience of test anxiety among university students

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Abstract

The work of assessing students' learning is complex. In order to assess their work objectively, teachers and instructors use various test techniques, methods and instruments. Though the causes of test anxiety are many and varied, understanding them could greatly help bring the rather perturbing test anxiety situation among students under control. The general aim of this study is to identify the degree of test anxiety among students from higher education institutions in the Republic of Macedonia. The research was carried out using adapted questionnaire for university students. Questionnaires contained a combination of closed-type questions and a scale for measuring exam anxiety among students. According to the results of research, test anxiety gives rise to physical and psychological problems as well. It affects motivation, concentration and achievement negatively, increases errors during the exam, creates problems recalling the material previously learned and prevents efficient study. Creating a low-stress environment allows students to concentrate on the test rather than being distracted by test anxiety. It is especially important to talk about this topic because test anxiety has many negative consequences on the physical and mental health of students and their academic achievement.

Keywords: test anxiety, symptoms, examination, university students, test techniques

Experience of test anxiety among university students

1. Introduction

It is almost impossible for an individual to grow up in today's society without meeting with multiple checks on different personal capacities. It is enough to briefly review the educational and developmental path of an average child: from the assessment of maturity to enroll in school (and even kindergarten), almost daily tests of knowledge, which start from the lowest to the highest levels of formal education, but also in many types of non-formal education. However, frequent assessments do not disappear from the lives of most adults, enrollment in college, colloquiums, exams, driver's license, work, there is almost no area of living that does not involve at least some form of assessment of our value as people, and many of these assessments have a very serious meaning for our future.

After a detailed analysis of the ubiquity of assessments throughout the life of an average person and the importance of success in those situations, it is not surprising that various tests of knowledge, abilities, skills, represent significant stressors for the majority of people and have a high potential for anxiety or other distress. However, there are individuals who are particularly sensitive to evaluation situations, individuals who tend to experience extremely high levels of one sub type of anxiety, so called evaluation or test anxiety. A negative effect of fear of assessment is primarily reflected in the fact that a person with pronounced test anxiety usually achieves significantly less success than his abilities justify (Birenbaum & Nasser, 1994). Unwanted consequences of severe test anxiety often appear in the mental health domain. Health psychologists who deal with the connection of stress with various somatic disorders, have discovered that anxiety as a consequence of exposure to difficult test situations causes problems in cardiovascular functioning, as well as a weakening of the immune system. It is defined as a special form of situational anxiety, which is characterized by somatic, cognitive and behavioral symptoms of anxiety when preparing for and solving exams (Bedewy & Gabriel, 2015).

Very often, test anxiety is defined as a state of tension, excitement, discomfort and worry that appears in exam situations, after them and during their imagining and expectations (Vizek Vidović et al., 2003). According to Zeidner (1998) test anxiety is a set of phenomenological, physiological and behavioral responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation. Although previously it was considered that test anxiety is a unidimensional construct, for a long time the authors agree that it is a construct of a multidimensional nature (McCarthy & Goffin, 2005; Stoeber, 2004.). Among the earliest models that tried to explain the multidimensional nature of the construct of test anxiety is the model of Liebert and Morris, according to which this construct includes two components: cognitive and emotional (McCarthy & Goffin, 2005; Stoeber et al., 2009).

People with a pronounced tendency to experience exam anxiety, show an extremely low threshold of tolerance for distress during assessment. They perceive evaluative situations as dangerous for their personal well-being, and therefore in such circumstances they often and intensively experience cognitive threat assessments, a reduced sense of self-efficacy, helplessness, a greater number of unpleasant emotions, various increased physiological reactions, self-deprecating thoughts, as well as thoughts regarding the anticipation of failure. Test anxiety begins to subside at the moment when the individual judges that his intellectual, motivational, and/or social capacities are too weak to meet the demands of the exam situation.

1.1 Structure of test anxiety

The structure of test anxiety was first created by the authors Liebert and Morris, back in the sixties of the last century. They distinguished two main ones components of test anxiety: cognitive nature of the phenomenon and second which reflects the emotional aspect of this phenomenon. These dimensions, even then called concern

and sensitivity, are still considered essential aspects of test anxiety, which are not only psychometrically differentiated, but have repeatedly been shown to cause different consequences, primarily for success, but also for other output variables of the stress process, in which test anxiety plays a key role. Although numerous studies confirm that the cognitive and affective components of test anxiety are two mutually exclusive dimensions, among them there is an expected and logical positive relationship. Thus, for example, Deffenbacher (1980) reported in his famous meta-study that the correlation between concern and sensitivity in most empirical research ranges from .55 to .76 (Deffenbacher, 1980). Scientists still find it useful to distinguish between cognitive and affective characteristics of test anxiety, especially some of the more modern authors, inter alia, study the behavioral manifestations of this situation-specific personality trait that includes behaviors such as procrastination, various types of avoidance, etc. In any specific evaluation situation, a person with marked test anxiety may experience all or only certain aspects of test anxiety (Zeidner, 1998).

1.2 Cognitive component of test anxiety

Cognitive component of test anxiety – worry anxiety caused by the exam is a variable that is predominantly of a cognitive nature, which has its physiological, affective and behavioral companions. The cognitive component of test anxiety is represented by so called worry dimension. Liebert and Morris originally defined the “care” dimension as “any a mental expression of a person's concern about the quality of one's own performance” (Liebert & Morris, 1967). Accordingly, tentatively the anxious person, instead of focusing all his cognitive capacities on solving the task, it thinks a lot about the implications and consequences of his own failure which, in his opinion, will definitely happen. Since the activation of test anxiety implies the initiation of a special subtype of stress - process, it is crucial to recognize the thoughts that encourage this vicious cycle. Such a subjective assessment usually causes people who are anxious about the exam itself to lose interest in solving the tasks and have a strong desire to completely withdraw and leave it the exam (Matthews et al., 1999). Dimension care itself has a fairly large number of negative consequences. First of all, such a way of thinking generates unpleasant affective reactions, which often last from the beginning of the preparation for the exam, during the exam itself and during the period of waiting for the results. Furthermore, anxiety can intensify over time and become a chronic pattern of a person's cognitive functioning.

1.3 Affective component of test anxiety

The affective component of test anxiety (which in modern research is defined as physiological hyper-irritability) consists of both objective somatic symptoms and measurable physiological reactions of the body, as well as subjective manifestations of emotional excitement and tension. The increased excitement of the autonomic nervous system during the exam (and in general) is recognized by: strong heartbeat, rapid breathing, various unpleasant gastric sensations, nausea, intense sweating, cold and sweaty palms, dry mouth, increased need to urinate, tremors, etc. Sympathetic is that part of the nervous system that is responsible for preparing various organs to fiercely face a sudden and dangerous situation (Zeidner, 1998).

According to numerous researches, it is concluded that the sensitivity is also of a cognitive nature, because it could not be at all registers without analyzing cognitive processes such as attention. Both those with high test anxiety and those with low test anxiety may experience heightened physiological arousal of the body. However, one of the key differences between them is that people with a high level of test anxiety experience those physiological symptoms as burdensome and an obstacle, while others are often motivated by that anxiety which they interpret as positive (Cohen et al., 2008). Some researchers have come up with unusual results, according to which people with pronounced test anxiety, in addition to getting a higher score on the dimension of neuroticism, they also score higher on personality questionnaires that assess extraversion. Scientists tried to explain this result with the fact that extraverted individuals are prone to numerous impulsive actions in various situations, including exam situations, so they assumed that sensitivity is the basis of that impulsivity (Sawyer & Hollis-Sawyer, 2005).

1.4 Behavioral component of test anxiety

Summarized from the above, test anxiety consists of two components: worry and sensitivity. However, it certainly has its own behavioral manifestations, certain behaviors, which are typical for people who suffer from severe evaluation anxiety. Two of the most common and most studied test anxiety behaviors are deficits in test-taking skills and procrastination. Procrastination manifests itself in the stage of exam preparation in such a way that these people constantly postpone the performance of various academic obligations, while this attitude towards learning causes them constant nervousness. The test-anxious person, who procrastinates before an important exam, is in constant readiness to study, planning to study every day, yet excessively procrastinating the very act of studying. It is thought that there may be two reasons for this: aversion to the material to be learned and/or fear of failing the exam (Zeidner, 1998)

1.5 The causes of test anxiety

A comprehensive perspective of the process that causes test anxiety was proposed by Zeidner with his transactional model. The following elements of the process are included in this model: evaluation context, content and difficulty of the task, individual differences in personality, threat perception, assessment and reassessment of the exam situation (experience threats, challenges, harmfulness or indifference to the situation), anxiety as a changing state, coping mechanisms with anxiety in general, strategies coping with evaluative stress and the outcomes of adaptation to the evaluative situation. It is considered that the interrelationships of the aforementioned elements are a continuous and dynamic process, so that people do not only react to situations, but also act on them through their reactions with constant interaction (Zeidner, 1998).

There are three main factors that lead to the appearance of test anxiety in students, namely: family expectations and pressures (Christenson et al., 1992; Dalaman & Medikoğlu, 2018), school expectations and policies (Dalaman & Medikoğlu, 2018) and student characteristics (Hoy, W. K., & Woolfolk, Lufi & Darliuk, 2005). Alam and Halder (2018) showed in their study that the most important causes of test anxiety in girls were personality and educational factors, while in boys educational and family factors had a major role. In the last four decades, many studies have examined the narrow causes of test anxiety. Two main sources have been identified. First, researchers believe that some students who have high levels of test anxiety mainly have a deficit in the organizational phase of test preparation, primarily inadequate study skills (Culler & Holahan 1980; Naveh-Benjamin et al., 1986; Wittmaier 1972; Mealey & Host, 1992). The second main cause of the exam anxiety arises from habitual, negative, unimportant thoughts that students only experience during exams (Sarason, 1984)

There are several causes of test anxiety that are related to the internal aspects of the student, namely: self-image, motivation and attitudes. More precisely, students may experience test anxiety if they have a negative self-image or do not have confidence in their own abilities, if they do not like lecturer, subject, course or if they have bad results in a course or in exams in general. Students often develop negative self-images when they get a bad result on an exam, especially if they feel they didn't get the grade they deserved. This can lead to increased anxiety in future exams (Mashayekha & Hashemi, 2011). Then, Leventhal and Sills (1964) state that anxiety arises because of an unrealistic self-image, which was created at an early age.

Test anxiety is caused by high personal standards of people who expect maximum success and fear that they are not able to meet their own standards (Lufi et al., 2004.). Then, some theorists believe that the efficiency and achievement of students who have a high level of anxiety directly depends on the quality of their attention and concentration during the exam (Alam & Halder, 2018). Also, they mention self-esteem as an important factor of test anxiety that is related to the individual. People who have high self-esteem- they are really strong in exams and problems, so the environment does not affect them, and they believe in their abilities. By studying other studies, it can be seen that indecisive students are generally more anxious, dependent and have low self-confidence compared to determined students. When it comes to exams, anxiety can also arise for the

following reasons: if the student is not physically or mentally healthy, late for the exam, if the student is overwhelmed by the amount of information it has to learn and cannot find or has forgotten test kit (Kaya, 2015).

Test anxiety can also be a learned behavior. Some children are socialized into developing test anxiety through early parent-child interactions (Raufelder et al., 2016). Children can learn to be upset in evaluative situations from their models (parents, siblings, teachers, peers, etc.), who display such behavior (Zeidner, 1998). Some studies show that parents of anxious students are more anxious than parents of other students and are more likely to teach their children experience anxiety (Cvitković & Wagner Jakab, 2007.). A part from internal individual factors, the findings of scientific literature suggest that test anxiety is correlated with contextual factors such as: school environment (Goetz et al., 2008), evaluation method or teaching style (Newstead, 1998). Several contextual factors have been shown to have a significant but modest effect on test anxiety, namely: exam importance and environment (Sarason, 1978), task difficulty (Eysenck, 1982), immediate performance feedback (Strang and Rust, 1973) and the possibility of choice when solving the exam (Keinan and Zeidner, 1987) Then, Moadeli and Ghazanfari (2004) consider that different factors such as complicated curricula, test frequencies, test content, and educational discipline can affect students' test anxiety (DordiNejad et al., 2011). Anxiety can sometimes be caused by time pressure, routine examination or poor interaction between teacher and student. It has been shown that teacher pressure and competitive situations can increase test anxiety (McDonald, 2001).

On the other hand, Lewis and Adank (1975, according to Patten, 1983) found that the more individualized the programs, the less anxiety students have. Alam and Halder (2018) state that the high expectations of teachers and professors cause a high level of anxiety and insecurity among individuals and worsen their problems in class and in the exam. Teacher-student relationships are an important factor in test anxiety and its impact on school performance. Regarding the teaching style, research by Newstead (1998) shows differences in the levels of test anxiety in children when they are taught in a traditional way compared to a teacher who uses an alternative teaching method. Consequently, the traditional teaching style will cause a high level of test anxiety while an alternative teaching style leads to a low level of test anxiety (Crisan et al., 2014).

Another factor that negatively affects student performance is an inappropriate survey technique. The causes of anxiety can also include not being clear enough test instructions. Test questions can be overly complicated (Fulton, 2016). Some authors believe that the method of giving instructions during the examination affects the appearance of test anxiety in students, so that problem was also examined. In his research, Smith reached results that are consistent with the thesis that the type of instruction affects the appearance of test anxiety in students and that instructions that contain humor have a positive effect on highly anxious people, and to achieve better results on such exams. Sometimes it is the type of test that leads to test anxiety. For example, some students panic when they realize they have to work essay tests, while others become anxious about oral exams. Different types of tests can make students anxious (Trifoni & Shahini, 2011).

2. Methodology of the research

Research objectives and tasks - the general aim of this study is to identify the degree of test anxiety among students from higher education institutions in the Republic of North Macedonia. The realization of this goal is done through the realization of the following tasks:

- Identify the level of test anxiety among students of different study years;
- Identify the most common cognitive blockages during exam situations;
- Identify the most common affective blockages during exam situations;
- Identify methods of assessment that causes the most anxiety among students.

Methods, techniques, and sample of research - The research was conducted with a descriptive-analytical method that is adequate and by the nature and character of the set goals of the research. The analytical method

analyzed the views and opinions of the respondents covered in the sample of the research.

There are several anxiety scales available in the literature. However, a collective emphasis on revision of scales according to current literature and cultural contrasts is essential. Some problems have been faced when adapting scales into Macedonian language and culture. Moreover, the importance of scale multidimensional and the need for developing shorter versions for ease of use have also been highlighted. However, scales should be originally developed within the culture to assess individuals from clinical as well as non-clinical populations.

In our research, we used an adaptation of the Anxiety Assessment Scale (AAS) (Malakcioglu, 2022), according to the Macedonian language and culture. AAS is a reliable and valid measurement instrument to assess anxiety levels in three dimensions. AAS can be applied for research, psychological assessment, and other appropriate application purposes. Also, a clinical psychologist, a school psychologist, a psychiatrist and a pedagogue evaluated the items to determine their content validity adapted to the Macedonian language. Validation also was conducted with pretesting 20 students to ensure that all items were comprehensible, culturally relevant, and not causing any confusion or misunderstanding. Questionnaires contained a combination of scale for measuring exam anxiety and closed-type questions about the examination techniques of professors considering that they are closely related to the level of stress among students. The sample was chosen randomly and consists of 133 students from different faculties and years of study in the Republic of North Macedonia.

Data processing - The data were processed quantitatively using the EXCEL and STATISTICS computer programs. They were grouped according to the number of matching in certain categories and then placed into tables. The data were calculated with frequencies for which a percentage was calculated.

3. Result and discussion

According to cognitive load theory, in test anxiety some part of the executive memory capacity is allocated to the anxiety; as a result, the individual underperforms due to the inability to use all of his/her executive memory resources, which can lead to poor academic performance (Grimley & Banner, 2008.). More specifically, Liebert and Morris (1967) described two dimensions of test anxiety: affectivity and delusion, which is the cognitive dimension of test anxiety, including negative evaluations and thoughts about the individual's own performance. The affective dimension of test anxiety refers to the individual's emotional reactions to situations such as success or failure in the evaluation process. It also refers to biological reactions such as increased heart rhythm, sweating, chills, stress, tension, and nervousness when the individual is tested. These emotional reactions are closely related to the subjective control over the evaluation process and the importance one attributes to the results of an evaluation (Ringeisen et al., 2016). In other words, test anxiety arises from an interaction between low subjective control and high subjective value attributed to performance outcomes and is the result of low control over outcomes.

Table 1

Affective dimension - psychosomatic tension

Psychosomatic manifestations of test anxiety	Almost never %	Sometimes %	Almost always	Total %
I feel my muscles tense.	45.1	18.8	36.1	100
I have digestive system problem.	35.5	24.7	39.8	100
My breathing is faster than usual.	35.3	20.3	44.4	100
Trouble sleeping the night before the exam	41.2	15	43.8	100

The study results indicated that most of the students, almost always or sometimes manifest psychosomatic tension such as: muscles tense, sweating and shaking hands, digestive system problem and pain, rapid heartbeat and trouble sleeping the night before the exam.

Table 2*Cognitive dimension - worrying*

Cognitive blockages during exam situations	Almost never %	Sometimes %	Almost always	Total %
I'm reading the test and I feel like I don't know any of the answers (memory concerns).	33.9	24.8	41.4	100
I fell like something bad will happen.	37.5	23.3	39.1	100
After testing I know the answers that I could not remember during the exam.	33.9	23.3	42.9	100
Sometimes I can't study when I remember being questioned by the professor.	51.1	20.3	28.6	100
I want to escape when the professor questions me.	60.9	15.8	23.3	100
I do not feel safe.	30.8	18.8	50.4	100
I fell uneasy about losing control.	36.1	32.3	31.5	100

The study results indicated that most of the students manifest cognitive blockages in exam situation, almost always feel like they don't know any of the answers and memory concerns (41.4%), fell like something bad will happen (39.1%), after testing they know the answers that they could not remember during the exam (42.9%), and do not feel safe (50.4%). These kinds of negative self-evaluations that produce worries can be counted as cognitive markers of anxiety. Hence, worries tied cognitions should be considered in addition to attention issues and memory-tied cognitive problems when assessing anxiety. A smaller percentage of students said "I want to escape when the professor questions me" and "I fell uneasy about losing control". A student who is aware that he has problems due to test anxiety must inform his professor about it. Today, there are various ways in which students' skills and knowledge can be tested. Teachers' attitudes are the key factors in reducing test anxiety. Test techniques, specific orientation before the test, information on the content and number of questions, time limitation and pressure are some significant problems about which teachers and instructors should think in order to reduce test anxiety, not to forget the systematic study, which is students' responsibility.

Table 3*Test techniques that causes the most anxiety among students*

Test techniques that causes the most anxiety among students	%
Oral examination and assessment	61.7
Both oral and written testing and assessment	14.3
Written assessment with essay	12
Written answers to questions by rounding and completing	6
Project presentation	6

According to the results, as many as 61.7% of respondents answered that their greatest stress causes the oral answer, then 14.3% answered with "both orally and in writing", next 12% answered that the most stressful type of assessment for them is the written one with essay questions, a there is a result of 6% for the statements "written answer with rounding and addition" and "preparation and presentation of a project task". The evaluation should refer to all aspects of the student's personality development. In in such a case, the evaluation can have a formative function, and it will also contribute towards reducing stress and exam anxiety among pupils and students. That means frequent and interactive assessment of students' achievements, understanding of learning needs, as well as adjusting teaching methods, according to needs and the student's abilities. The most realistic is the assessment when in the enactment opinion both the student and the teacher participate in the assessment, publicly and transparently (they do self-assessment and self-assessment of one's own work).

4. Conclusions

By describing the numerous causes of this complex construct, one gains insight into the fact that the very characteristics of students, learning skills and preparation, as well as family and academic factors may be responsible for the presence of test anxiety. By citing the various symptoms and changes that occur in the physical, cognitive, emotional and behavioral areas, one gains insight into the ways in which test anxiety

manifests itself. It is especially important to talk about this topic because test anxiety has many negative consequences on the physical and mental health of students and their academic achievement.

According to the results of research, test anxiety gives rise to physical and psychological problems as well. It affects motivation, concentration and achievement negatively, increases errors during the exam, creates problems recalling the material previously learned and prevents efficient study. Creating a low-stress environment allows students to concentrate on the test rather than being distracted by test anxiety. Through the type of interaction with the student, the teacher can influence the individual characteristics of the student, such as attributing success in learning to effort, encouraging beliefs about control, learning orientation, perception of student self-efficacy, etc., which leads to more effective application of learning strategies and more effective choice and more successful coping with negative emotions on the exam. So, a low level of test anxiety and using effective learning strategies will lead to better achievement in school. Every teacher should know the basics anxiety disorders that may appear in students. Teachers can work to reduce test anxiety in their students. If the teacher feels that the student has anxiety disorders, then they should adjust their way of questioning.

One of the shortcomings of testing and assessment in our current school practice is the absence or little, often formal, involvement of students in these activities. On the contrary, all recent knowledge advocates for a greater and real involvement of students in the checking and evaluation of their achievements, with an emphasis on self-examination and self-evaluation. Such efforts have their justifications:

- When the student actively participates (collaborates) in checking and evaluating his own achievements, or even when he does it completely independently, if he is capable of self-checking and self-evaluation, then the diagnosis about the degree of his success, about the pace of progress in learning becomes very more accurate. Without the cooperation of the student, the teacher will not be completely successful in diagnosing performance, just as the doctor does not establish the diagnosis without patient cooperation.
- The student's participation in these activities increases his responsibility for his own learning. Not only does it help him better understand his good and weak learning results, but he more successfully perceives what and how he needs to work more and better and plan his future work.
- Involvement in checking and assessment has a very beneficial effect on the student's motivation and self-confidence. In that way, his is increased faith in one's own abilities and then learning about it gets real meaning. Also, he gets rid of the thought that he is studying because he has to and realizes that he is in the interest of his personality development.
- In training students for self-assessment, it is best to follow the logic of formative assessment, that is, to train the student to answer the questions related to learning: What do I want to achieve? (Awareness of goals). How far am I on the way to the goal? (Awareness of criteria and own achievements). What should I do next to reach my goal? (Awareness of learning processes).
- There is a need for anxiety-reduction programs in colleges. Test anxiety can be managed through applying study preparation and active methods by lecturers. Faculty members and heads of departments should let students learn about study preparation during the semester and support their engagement in class activities and accomplishment of courses.
- Lecturers should adopt more group work presentations and tutorial methods in teaching. They should also teach students how to answer questions and make presentations to help boost students' confidence levels and eventually reduce anxiety in them. Counsellors should teach students some relaxation techniques and other esteem-building strategies to help control students' anxiety levels.
- Teachers should inform the students on content, test techniques, number of the items included in the test before and should find ways to evaluate students without inducing high levels of anxiety, while

still maintaining a positive, effective climate.

- Parents should also encourage their children to be assertive, responsible and independent in their youth to enhance their confidence levels.

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