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THE VALIDATION OF PERFORMANCE FAILURE APPRAISAL INVENTORY FOR THE EDUCATIONAL CONTEXT OF HIGH SCHOOL STUDENTS IN ROMANIA

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ABSTRACT. Fear of failure is a concept that has been studied since 1969, but over the years that followed its conceptualization has undergone various changes. Even if the fear of failure is currently being studied extensively amongst athletes, we considered that research is needed in other fields, such as education. Thus, the objective of our study was to validate the Performance Failure Appraisal Inventory among the Romanian population, referring to the educational context of adolescents participating in national competitions. Therefore, the internal consistency, the factorial structure, the external validity as well as the gender discriminating power of the questionnaire were analysed. The sample of our study consisted of 541 teenagers, 9th-12th grade pupils from 41 districts in Romania, participating in national Olympiads in various school subjects (Romanian Literature, English, French, Italian, Portuguese, Spanish, Reading as Life Skills, Socio-Human Sciences, Religion, Geography, History, Mathematics, Biology, Informatics, Physics, and Chemistry). The results obtained support the factorial structure represented by the five factors (Fear of experiencing shame and embarrassment, Fear of devaluing one's self-estimate, Fear of having an uncertain future, Fear of important others losing interest, and Fear of upsetting

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important others). Also, the results obtained with regard to the psychometric properties of the questionnaire support that it can be successfully used in the educational field. Through the validation of the Performance Failure Appraisal Inventory we hope to promote more intense research in the educational domain of fear of failure, which in the last years suffers from a lack of studies in this direction.

Keywords*: fear of failure, educational context, factorial structure, psychometric properties*

ZUSAMMENFASSUNG. ***Die Validierung des Leistungsausfall Bewertung Inventars für den Bildungskontext der Gymnasiasten in Rumänien.*** Angst vor dem Scheitern ist ein Konzept, das seit 1969 untersucht wurde, aber in den folgenden Jahren hat seine Konzeptualisierung verschiedene Veränderungen erfahren. Auch wenn die Angst vor dem Scheitern derzeit bei Sportlern intensiv untersucht wird, waren wir der Meinung, dass Forschung in anderen Bereichen wie der Bildung benötigt wird. Ziel unserer Studie war es daher, das Inventar der Bewertung von Leistungsausfall bei der rumänischen Bevölkerung zu validieren, wobei auf den Bildungskontext von Jugendlichen, die an nationalen Wettbewerben teilnehmen, Bezug genommen wird. Daher wurden die interne Konsistenz, die faktorielle Struktur, die externe Validität sowie die geschlechterdiskriminierende Aussagekraft des Fragebogens analysiert. Die Stichprobe unserer Studie bestand aus 541 Jugendlichen der 9.-12. Klasse aus 41 Bezirken Rumäniens, die an nationalen Olympiaden in verschiedenen Schulfächern (rumänische Literatur, Englisch, Französisch, Italienisch, Portugiesisch, Spanisch, Lesen als Lebensfähigkeiten, Soziohumanwissenschaften, Religion, Geographie, Geschichte, Mathematik, Biologie, Informatik, Physik und Chemie) teilnehmen. Die erzielten Ergebnisse stützen die faktorielle Struktur, die durch die fünf Faktoren dargestellt wird (Angst davor, Scham und Peinlichkeit zu erleben, Angst davor, die eigene Einschätzung zu entwerten, Angst davor, eine ungewisse Zukunft zu haben, Angst vor dem Verlust von Interesse den wichtigen anderen Personen und Angst davor, andere zu ärgern). Auch

die im Hinblick auf die psychometrischen Eigenschaften des Fragebogens erzielten Ergebnisse bestätigen, dass er im Bildungsbereich erfolgreich eingesetzt werden kann. Durch die Validierung des Leistungsausfall Bewertung Inventars wollen wir eine intensivere Forschung im Bereich der Angst vor dem Scheitern fördern, die in den letzten Jahren an einem Mangel an Studien in dieser Richtung leidet.

***Schlüsselwörter**: Angst vor dem Scheitern, Bildungskontext, faktorielle Struktur, psychometrische Eigenschaften*

1. Introduction

Fear of failure can be interpreted as a self-evaluative framework that influences how the individual defines, orientates, and experiences failure in assessment situations (Heckhausen, 1991). The underlying research on the origins of fear of failure seems to suggest that it has its foundation in social relationships with parents and parent-child relationships. Teevan (1983) indicates that children with a high level of fear of failure had mothers who punished the failure, and responded neutral to success. Smith (1969) showed that mothers with boys with high levels of fear of failure had set high standards for their sons but did not perceive their children as having the ability to achieve these standards. Schmalt (1982) examined in time the expectations of parents regarding the academic behaviors and independence of their children and identified a positive relationship between early expectations and fear of failure. Maternal irritability and addiction (Singh, 1992) and the paternal absence of the family (Greenfeld & Teevan, 1986) have been shown to be positively associated with the child's fear of failure.

In general, existing data indicates that people with high levels of fear of failure seem to have learned to define failure as an unacceptable event that has negative implications for its own value and relational security, which urges them to orient vigilantly and seek to avoid failure in situations of achievement.

Atkinson (1957) defines the concept of fear of failure as the dispositional tendency of an individual to focus on avoiding failure in assessment contexts, for not experiencing the feeling of shame in case of failure. It is not the failure in itself that triggers fear, but the shame that accompanies failure (Atkinson, 1957). Given the acute disappointment of experiencing a failure, in contexts of achievement, the individual is perceptively and cognitively oriented towards information relevant to failure. He/she experiences anxiety before and during work tasks, in which he/she engages and seeks to protect his/her self from failure by either physically (quitting) or mentally (retreating effort), or by forcing himself hard to achieve success with the aim of avoiding failure (Covington, 1992; Elliot & Church, 1997).

In the past, the fear of failure was measured by the scales of anxiety, but Performance Failure Appraisal Inventory by Conroy and collaborators (2002) is currently being used. Since it has been realized, there has been a growing interest in its use by various sports researchers. Thus, we identified studies whose objective was the validation of Performance Failure Appraisal Inventory in other languages or countries, such as Turkey (Kahraman & Sungur, 2016), Portugal (Correia, Rosado & Serpa, 2016) and UK (Sagar & Jowett, 2010). In these studies, we identified that the factorial structure of the inventory was retained by exploratory and confirmatory factorial analyzes, and each scale of the questionnaire obtained a satisfactory internal consistency.

This questionnaire was designed to measure the fear of failure amongst athletes and is often used for this purpose among various sports and is validated in other languages, but this questionnaire has never been used (at least we did not identify studies existing to date) in other contexts than sports. For this reason, the objective of our study is to validate this questionnaire among high school students participating in national competitions in Romania to identify whether it maintains its factorial structure and psychometric properties so that it can be a useful tool in research in the field of education.

In recent years, with the Performance Failure Appraisal Inventory (Conroy et al., 2002), a multitude of studies in sports have focused on investigating the relationship between fear of failure and other variables such as competitive anxiety (Conroy, 2004; Wilt, 2016), perfectionism (Sagar & Stoeber, 2009), achievement goals (Conroy & Elliot, 2004), behaviour (Sagar, Boardley, & Kavussanu, 2010), etc., but in the educational field no research has been found to use this inventory.

In a study on avoiding sports exercises, Ellis (1994) found that many of the athletes avoided doing physical exercises because of the fear of experiencing a failure in front of the public; thus avoiding them is basically a strategy to avoid shame. For an athlete, the threat of a possible failure and the associated shame may also cause anxiety by the fear of experiencing shame (Spielberger, 1966 apud Elison & Partridge, 2012).

Tangney (2002) argues that perfectionism and emotions such as shame, embarrassment and guilt mix together because these emotions are often caused by self-evaluation, an essential component of perfectionism. Perfectionists can set high standards for themselves or adopt high standards set by others, but also focus on their self-evaluation in relation to these standards, and any imperfection will generate shame or embarrassment. For example, Hewitt and Flett (1991) have identified the existence of moderate positive correlations between perfectionism and shame. Similarly, Tangney explored the relationship between shame and perfectionism in three recent studies, and focusing on socially prescribed perfectionism, a maladaptive dimension, identified correlations from .15 to .33.

In sports, Conroy, Kaye and Fifer (2007) also examined the link between perfectionism and the fear of failure among students enrolled in physical education. Their findings support the link between socially prescribed perfectionism and beliefs that failure will lead to experience negative consequences such as the disappointment of important people. Sagar and Stoeber (2009) also identified that the fear of experiencing shame and embarrassment is the central link in the relationship between

fear of failure and perfectionism, but also in the relationship between certain forms of perfectionism and negative emotional states experienced after a failure.

There is also a possibility that individuals with a high level of perfectionism - because they have excessively high standards and are too self-critical - are particularly vulnerable to failure and react negatively after experiencing a failure in performance compared to those with a low level of perfectionism (Besser, Flett, & Hewitt, 2004).

Frost and Henderson (1991) investigated the relationship between perfectionism and the orientation to success and failure among female athletes. Perfectionism was measured using Frost's Multidimensional Perfectionism Scale (FMPS, Frost et al., 1990). Two dimensions of perfectionism were used - personal standards and concern over mistakes - which were identified as representing the adaptive and maladaptive perfectionism (Stoeber & Otto, 2006). Frost and Henderson indicated that perfectionism as a general score correlated strongly with both orientation to success and failure, supporting the paradoxical nature of perfectionism in athletes (Flett & Hewitt, 2005). However, for each dimension of the analysis, correlations were much more different: while personal standards correlated both with orientation to success and failure, the correlation with the orientation to success was significantly higher. In terms of concern over mistakes, it correlated significantly more strongly with the orientation to failure, indicating that the negative aspects of perfectionism in athletes are more closely related to the fear of failure than to the hope of success, while the positive dimension of perfectionism is more closely related to the hope for success rather than the fear of failure (Flett & Hewitt, 2005).

The relationship between perfectionism in sport and fear of failure is highlighted by findings suggesting that aspects of both dimensions of perfectionism - adaptive and maladaptive perfectionism - indicate positive correlations with the fear of failure, suggesting that fear of failure is associated with all aspects of perfectionism (Kaye, Conroy, & Fifer,

2008). However, in a more detailed analysis, the scales of maladaptive perfectionism are those that mainly correlate positively with the fear of failure.

In their study, Sagar and Stoeber (2009), which aimed to investigate how perfectionism and fear of failure predicted the positive and negative affect resulting from scenarios illustrating success and failure in sports competitions, they were also interested in how the scales of perfectionism and those of fear of failure were related in a sample of 388 athletes. The results of the study have shown that personal standards (the adaptive perfectionism) have a negative relationship with the fear of experiencing shame and embarrassment and a positive relationship with the positive affect resulting from success, while concern over mistakes and parents' pressure (the maladaptive perfectionism) have shown a positive relationship with the fear of experiencing shame and embarrassment and with the negative affect resulting from failure. Moreover, the fear of experiencing shame and embarrassment fully mediated the relationship between concern over mistakes and negative affect and between perceived pressure from the coach and negative affect also.

Sagar, Boardley and Kavussanu (2010) conducted a study among 331 athletic students whose aim was to verify the extent to which fear of failure and sport experience predict antisocial behaviour in academic and sports contexts and whether this prediction is the same for men and women. A second objective of the study was to test the existence of possible gender differences in the manifestation of antisocial behaviour and fear of failure. The results of the study indicate that the fear of failure and sports experience predicts antisocial behaviour in the university and sport, and the power of these predictions was not different between men and women. Also, female subjects reported higher levels of fear of self-devaluation compared to males, who in turn reported higher levels of fear of losing social influence. Similarly, the results showed that male engaged more often than women in antisocial behaviour in both contexts.

In athletics, fear of failure occurs when beliefs about the negative consequences of failure are triggered by situations where this is possible (for example, in a competition, Conroy, 2004). This fear of experiencing a failure has been shown to cause feelings of both cognitive and somatic anxiety, cognitive disorders and worry (Conroy, 2001; Conroy et al., 2002).

In a study by Wilt (2016), on a sample of 77 female participants in the runway, the relationship between anxiety manifested in the competitive context and the five types of fear of failure was analysed, in accordance with Conroy's model (2001). The results of the study showed that the total scores of the fear of failure scale correlated significantly with concern (cognitive anxiety), but did not support any relationship with somatic anxiety, argued by the fact that the scale of the fear of failure does not include items referring to physiological symptoms. The relationship between fear of failure and cognitive anxiety can suggest that subjects who are thinking about failure have more negative thoughts before the competition, which contributes to their level of cognitive anxiety. This study included two factors (age and experience, that is, the number of competitions) considered to have an influence on the level of anxiety experienced. The initial assumption was that with the increase in age and experience, anxiety and fear of failure will decrease. However, age and years of experience did not significantly predict cognitive anxiety or fear of failure scores, although previous studies correlated them with anxiety and fear of failure. Hanton, Neil, Mellalieu and Fletcher (2008) have shown that elite athletes with high levels of experience have reported increased levels of self-confidence and lower levels of anxiety.

Conroy and Elliot (2004) in a study using a sample of 356 students enrolled in sport activities showed that fear of failure has positive relationships with performance-avoidance goals, performance-approach goals and mastery-avoidance goals.

2. Measuring the fear of failure

In the past, researchers considered fear of failure as a one-dimensional construct because many aspects of the reasons why people worried and why they fear that they could not be successful were not known (Conroy, 2001). To understand better this construct, Birney, Burdick and Teevan (1969 apud Jackaway & Teevan, 1976) proposed a three-dimensional model in addressing the fear of failure. Model dimensions include: a) fear of self-devaluation, b) fear of punishment, and c) fear of reducing social value. Moreover, Conroy, Poczwardowski and Henschen (2001) have improved this model and defined five aversive consequences of failure: a) experiencing shame and embarrassment, b) self-devaluation, c) the possibility of having an uncertain future, d) the possibility of losing the social interest, and e) the possibility of disappointing the others.

The first dimension of fear of failure is the one of experiencing shame as a result of failure, and refers to the negative self-evaluations of the people themselves, or in other words, they believe that failure brings them shame and embarrassment, and for this reason they try to avoid failure. The second dimension refers to self-devaluation, and to the fact that some people can blame themselves for experiencing a failure and this may lead to a decrease in self-confidence. A third possible consequence of failure is the fear of having an uncertain future. Some people believe their future plans must change after experiencing a failure, and these changes make them see the future ambiguous. Another reason why people are afraid of failure is the possibility that others are losing interest in their person. People who fear losing interest think their value depends on their success and they think that if they fail, their value will drop for some people. According to them, failure has a negative impact that leads to a loss of social influence. The last dimension, as a consequence of experiencing a failure is the possibility to disappoint the important people, such as parents or teachers (Conroy, 2001; Conroy, Willow & Metzler, 2002).

In line with this revised model, Conroy and collaborators (Conroy et al., 2001) have developed the Performance Failure Appraisal Inventory (PFAI) to assess people's beliefs about the consequences of failure. They explain the fear of failure through five sub-scales: fear of experiencing shame and embarrassment, fear of self-devaluation, fear of having an uncertain future, fear of losing social influence, and finally fear of disappointing the important others.

PFAI (Performance Failure Appraisal Inventory, Conroy, 2001) was designed to be a useful clinical tool in assessing an individual's motivation to fear failure. Lazarus (1991) stated that an individual's appraisal about a perceived (real or imaginary) change in his relationship with the environment leads to the occurrence of an emotion. In the case of fear and anxiety, the centre of appreciation highlights the threatening or aversive consequences associated with failure. These five types of appreciation are interconnected moderately and strongly with each other, and the relationships between them can be effectively summed up by a single total score, which is a general fear of failure (the belief that failure is associated with threatening or aversive consequences).

In his final development, the author made three preliminary studies. The first one was a qualitative study conducted to identify the aversive consequences of failure that provides the basis for assessments associated with the fear of failure. A second study that describes how PFAI was developed and it included a first attempt to test its psychometric properties also. And a third study analysing the instrument as well as the issues that led to a change in PFAI. Conroy and collaborators (Conroy et al., 2002) did both a version of the 25-item tool (named by them as the long version) and a short version of 5 items.

In his approach to fear of failure, Conroy (in his first qualitative study) conducted the analysis of the themes found in interviews on how respondents see the failure and its consequences. Among the issues listed by the interviewed subjects about what determines an individual to assert that he has experienced a failure were the unfulfilled personal goals, the loss of opportunities, the lost control of aspects that could be

controlled, insufficient or inefficient adaptation, inefficient communication, the perspective on the individual role played in achieving performance, the inefficiency of the control manifested in certain aspects, the creation of situations that have led others to doubt, the disappointment of others, self-devaluation, self-oriented skepticism. With regard to the consequences of the failure found by Conroy in the interviews, the subjects referred to material loss (things, jobs, opportunities, etc.), repeated failures (failure attract other failures), blocked aspirations, improved performance (use of failure as a catalyst experience) by increasing motivation and efficiency of activities, inhibiting motivation by refusing to engage again, using coping strategies, the influence of failure on personal life or relationships with those closest to them, experiencing negative emotions.

During his development, Conroy (2001) tested the original questionnaire among 396 high school students and college students (167 women and 229 men) through a series of factorial confirmatory analyses. Since the original questionnaire contained too many items (41 items), Conroy, Willow and Metzler (2002) revised the PFAI and developed a second version by removing items from the original. The revised version consists of 25 items, according to the original version - placed on five subscales, as follows: fear of shame and embarrassment (7 items), fear of self-devaluation (4 items), fear of having an uncertain future (4 items), fear of losing social influence (5 items), and fear of disappointing important others (5 items). The type of response used is on a 5-step Likert scale, where "- 2" means "I do not believe at all", "0"-"I think 50%" and "+ 2" – "I totally believe". In order to review the inventory, researchers conducted a validation study with 438 students (234 female and 204 male). The internal consistency obtained for each of the scales was: .80 for the shame and embarrassment scale, .74 for the scale of self-devaluation, .80 for the fear of having an uncertain future, .81 for the scale of losing social influence, and .78 for the fear of disappointing the important others scale. The authors also conducted a confirmatory factorial analysis, obtaining the necessary data supporting the existence of a relevant model (GFI = .98, CFI = .95, RMSEA = .04, SRMR = .09).

3. Translation of the Performance Failure Appraisal Inventory

The translation of the questionnaire into Romanian was done by 3 people individually, and the three versions resulted were compared to set the final version. The final version has been back translated into English so that can be compared to the original version. Because there were no differences in the content of the items between the two versions of the questionnaire, the Romanian version was used among high school students to carry out the validation process. In the PFAI validation process, we will use the exploratory and confirmatory factorial analyses, the internal consistency coefficients of each scale, the gender differences, as well as the convergent external validity. According to the author of the questionnaire, the fear of failure is associated with high levels of worry, anxiety, intrusive thoughts and sports anxiety; and with low levels of optimism (Conroy, Willow, & Metzler, 2002).

4. Method

4.1. Participants

The selected group of subjects consisted of 541 teenagers (357 girls and 184 boys), 9th-12th grade students, aged between 15 and 19 years (M= 16.71, SD= 1.17) who participated in various national Olympiads. Distribution by gender variable was as follows: 66% girls and 34% boys. In the study were selected students participating in various competitions targeting the following subjects: Romanian Literature, English, French, Italian, Portuguese, Spanish, Reading as Life Skills, Socio-Human Sciences, Religion, Geography, History, Mathematics, Biology, Informatics, Physics, and Chemistry. They were selected from the public lists on the official Olympics websites and contacted online to complete a set of 2 questionnaires.

4.2. Measures

Performance Failure Appraisal Inventory (Conroy et al., 2002) made up of 5 scales that refer to the aversive consequences associated with failure: fear of shame and embarrassment (7 items), fear of self-devaluation (4 items), fear of uncertain future (4 items), fear of losing social influence (5 items), and fear of disappointing important others (5 items). The type of response used is on a 5-step Likert scale where "- 2" means "I do not believe at all", "0" - "I think 50%" and "+ 2"-"I totally believe". General fear of failure is calculated by averaging the 5 subscales. The internal consistency reported by the authors for each of the scales of the questionnaire is: fear of shame and embarrassment (.80), fear of self-devaluation (.74), fear of uncertain future (.80), fear of losing social influence (.81), fear of disappointing important others (.78), and for entire inventory (.78). The score for each of the five scales is calculated by averaging the items of each scale. And the score for general fear of failure is calculated by averaging the five scales. High scores represent that the person has a high level of fear of failure.

Developed by Spielberger (1980), the Test Anxiety Inventory (TAI) is according to Chapell and collaborators (Chapell et al., 2005), the most important and often used tool in measuring test anxiety among high school students and university students.

The Test Anxiety Inventory translated and adapted for an educational competition context (Olympiads and Interdisciplinary Competitions) (Holic, 2018) consisting of 20 items, grouped into three distinct dimensions (Worry, Emotionality and Total Anxiety).

Test Anxiety Inventory is a scale of responses that is measured by the 4 steps (Likert scale), the respondents' options for choosing the answer are as follows: "1" – "Almost never", "2" - "Sometimes", "3" – "Often", and "4" –"Almost always".

4.3. Results

Exploratory factorial analysis

For the exploratory factorial analysis, the SPSS (Statistical Package for Social Sciences) version 20 was used. The extraction method used in this case is Principal axis factoring, through which we will make an initial estimate of the common variance in which communalities have the lower value of 1. Oblimin rotation was used because it is a general form to obtain the oblique rotations when factors are expected to correlate, the aspect considered by performing this analysis. In this case, the exploratory factorial analysis performed by the extraction method generated a structure represented by five factors, using K1 Method (Kaiser), by which we retained the factors whose eigenvalue were ≥1.

Following the analysis, the distribution of the 25 items was determined by five factors, thus confirming the five questionnaire scales, but one item (item 16) was distributed differently from the original version, migrating from factor 2 to factor 3. Thus, on Factor 1 were loaded items no. 19, 14, 3, 6, 8; on Factor 2 items 4, 7, 1; on Factor 3 items 24, 16, 18, 15, 20, 25, 10, 22; on Factor 4, items 8, 5, 2, 12; and on Factor 5, items 21, 17, 13, 23, 11.

Table 1 contains the loads of each item of the five factors. The Appendix presents the Romanian items for each scale of the inventory.

Table 1. *The Exploratory factorial analysis – distribution of items*

Items	Factor				
	1	**2**	**3**	**4**	**5**
Item 19	.909				
Item 14	.721				
Item 3	.622				
Item 6	.472				
Item 9	.443				

Items	Factor				
	1	2	3	4	5
Item 4		-			
	.809				
Item 7		-			
	.705				
Item 1		-			
	.680				
Item 24			.772		
Item 16			.686		
Item 18			.650		
Item 15			.592		
Item 20			.584		
Item 25			.482		
Item 10			.387		
Item 22			.340		
Item 8				-.771	
Item 5				-.759	
Item 2				-.644	
Item 12				-.471	
Item 21					.876
Item 17					.612
Item 13					.557
Item 23					.522
Item 11					.467

Confirmatory factorial analysis

In performing the confirmatory factorial analysis, the AMOS version 20 program was used to analyse the five factors. Also, we have used identified data on validated versions in other countries to illustrate the results obtained by us. The fit indices obtained are presented in Table 2.

We mention that in some adapted versions we have not identified all the data analysed by us and for this reason there are missing data in the table below.

Table2. *The fit indices for Performance Failure Appraisal Inventory (Conroy, 2002) - Romanian version*

Subscales	df	$_x$2 /df	RMSEA	CI	CFI	TLI
PFAI (Romanian version)	265	3.05	.06	.05 - .06	.93	.92
PFAI (original version)			.05		.92	
PFAI (UK version)	265	2.96	.06	.05 - .06		
PFAI (Turkey version)			.08		.95	
PFAI (Portugal version)	134		.04		.96	

RMSEA- Root Mean Square Error of Approximation; CIA – Confidence interval for RMSEA; CFI – The Comparative fit Index.

Psychometric properties of the instrument

The Performance Failure Appraisal Inventory (Conroy et al., 2002) Romanian version is comprised of five subscales as follows: Fear of experiencing shame and embarrassment, Fear of devaluing one's self-estimate, Fear of having an uncertain future, Fear of important others losing interest, and Fear of upsetting important others.

As required, the mean, standard deviation and internal consistency coefficient were calculated for both the whole questionnaire and each subscale.

In Table 3 we present the mean, the standard deviation and the internal consistency of the questionnaire Performance Failure Appraisal Inventory (Conroy et al., 2002) Romanian version.

In Table 4 we present the mean, the standard deviation and the internal consistency coefficients for each subscale of the questionnaire.

Table 3. *The mean, the standard deviation and the internal consistency of the questionnaire Performance Failure Appraisal Inventory (Conroy, 2002), Romanian version*

Mean	Standard deviation	Alpha Cronbach coefficient
-13.30	20.63	.85

Table 4. *The mean, standard deviation and the internal consistency coefficients for each subscale of the questionnaire*

Subscale	Mean	Standard deviation	Alpha Cronbach coefficient
Fear of experiencing shame and embarrassment	-1.7	8.4	.88
Fear of devaluing one's self-estimate	-1.33	3.26	.82
Fear of having an uncertain future	-1.99	3.08	.81
Fear of important others losing interest	-4.47	4.97	.88
Fear of upsetting important others	-2.52	4.17	.86

External Validity

In order to achieve external validity, authors findings were used, which claimed that fear of failure was associated with high levels of anxiety, intrusive thoughts and sports anxiety; and with low levels of optimism (Conroy, Willow, & Metzler, 2002). In order to achieve the convergent external validity, we chose to examine the relationship between fear of failure and test anxiety (which is a form of state anxiety), measured by Test Anxiety Inventory (Spielberger, 1980).

Thus, the hypothesis from which we started refers to the fact that there is a positive correlation between test anxiety and the scores of the Performance Failure Appraisal Inventory, meaning that subjects who obtained high scores at the test anxiety scale will achieve high scores on measuring scales of fear of failure.

Regarding the examination of the relationship between fear of failure and test anxiety subscales, the correlations between them were calculated. The identified correlations are shown in Table 5.

Table 5. *The correlations between fear of experiencing shame and embarrassment, fear of devaluing one's self-estimate, fear of having an uncertain future, fear of important others losing interest, fear of upsetting important others, cognitive test anxiety, emotionality test anxiety, general test anxiety, and general fear of failure.*

	1	2	3	4	5	6	7	8	9
(1)Shame and embarrassment	-	.598**	.582**	.674**	.624**	.560**	.493**	.584**	.916**
(2)Devaluing one's self-estimate		-	.552**	.419**	.554**	.428**	.367**	.436**	.714**
(3)Uncertain future			-	.490**	.755**	.418**	.392**	.441**	.720**
(4)Losing interest				-	.545**	.385**	.289**	.371**	.830**
(5)Upsetting important others					-	.430**	.403**	.457**	.719**
(6)Cognitive anxiety						-	.678**	.885**	.553**
(7)Emotionality anxiety							-	.923**	.465**
(8)General test anxiety								-	.562**
(9)General fear of failure									-

**p<.01

Thus, in the case of cognitive test anxiety and all five fear of failure subscales the results obtained show that there is a significant positive correlation between them, meaning that subjects with a high level of test anxiety have a high level of fear of experiencing shame and embarrassment, fear of devaluing one's self-estimate, fear of having an uncertain future, fear of important others losing interest, fear of upsetting important others.

Also, the correlations between emotionality test anxiety and all five fear of failure subscales the results obtained show that there is a significant positive correlation between them, meaning that subjects with a high level of test anxiety have a high level of fear of experiencing shame and embarrassment, fear of devaluing one's self-estimate, fear of having an uncertain future, fear of important others losing interest, fear of upsetting important others. What can be noticed is that the correlations between cognitive test anxiety and fear of failure subscales are higher than those existing between emotionality test anxiety and fear of failure subscales.

In the case of general test anxiety and general fear of failure scores, the results show that there is a significant positive correlation between them, meaning that subjects with a high level of test anxiety have a high level of fear of failure ($r = -.56$, $df = 539$, $p < .01$).

Gender differences

To identify the gender differences in the fear of failure among Olympic high school students, we used a multivariate variance analysis (MANOVA). The dependent variables were represented by the five subscales of the questionnaire (fear of experiencing shame and embarrassment, fear of devaluing one's self-estimate, fear of having an uncertain future, fear of important others losing interest, fear of upsetting important others). The obtained results supported the existence of significant differences between female and male subjects in terms of dependent variables (Pillai $F_{5,535} = 4.3$, $p < .01$, $\eta^2 = .04$).

Each dependent variable was subjected to an ANOVA analysis to demonstrate whether this trend is similar to each of the dependent variables taken separately. When measuring the difference between female and male subjects in terms of fear of shame and embarrassment, ANOVA analysis demonstrated that overall there was a significant difference between means ($F_{1,539} = 10.28$, $p < .01$, $\eta^2 = .02$), and also, in the case of the fear of an uncertain future ($F_{1,539} = 4.6$, $p < .05$, $\eta^2 = .008$).

As for the fear of devaluing one's self-estimate, fear of important others losing interest, and fear of upsetting important others there were no significant differences between the two groups.

Regarding the differences in the two scales, t tests for independent samples were used to identify differences between female and male subjects. Thus, in the case of fear of shame and embarrassment mean scores for male subjects (M= -3.29, SD=7.92) are significantly lower (t= -3.2, df= 539, p<.01) than those of female subjects (M= -.86, SD=8.53).

In the case of the fear of an uncertain future, the mean scores of the male subjects (M = -2.38, SD = 2.93) are significantly lower (t= -2.14, df = 539, p<.05) than those of female subjects (M= -1.78, SD= 3.14).

5. Discussions

The current study investigated the validity of the Performance Failure Appraisal Inventory in a Romanian sample of high school students who take part to different educational competitions. We considered that the competitive context is relevant to assess the fear of failure of the various Olympics participants, given that this type of competition is a highly important one for the students. So we were concerned with translating the Performance Failure Appraisal Inventory (Conroy et al., 2002) and investigating both internal and convergent validity, and its power of discrimination.

Translation and adaptation studies have been conducted in other languages, demonstrating both its factorial structure and its psychometric properties (Sagar & Jowett, 2010; Kahraman & Sungur, 2016; Correia, Rosado & Serpa, 2016). In the studies about PFAI validation on other populations, the following results were obtained with regard to internal consistency coefficients: in Turkey (Kahraman & Sungur, 2016) in a first study, the coefficients ranged from .64 to .85, and in a second study from .70 to .86; in Portugal (Correia, Rosado & Serpa, 2016) after the removal of some of the items, the internal consistency coefficients for Fear of experiencing shame and embarrassment was .78, for Fear of devaluing one's self-estimate .75, Fear of having an uncertain future .76, Fear of important others losing interest .76, and Fear of upsetting important others .77; and in United Kingdom (Sagar & Jowett, 2010) the results obtained were .81, .70, .71, .81, and .77. The same procedure we followed in this case, but we used the scale in the context of educational competitions. Based on the exploratory factorial analysis, we found, taking into account the data analysis and guiding us by the results of the communalities of the items, that it was not necessary to give up any of them. Only one item has migrated from one factor to another, and more precisely, from the Fear of devaluing one's self-estimate scale to the Fear of experiencing shame and embarrassment scale. The resulting scale with all five factors is identical with the original version (Fear of experiencing shame and embarrassment, Fear of devaluing one's self-estimate, Fear of having an uncertain future, Fear of important others losing interest, and Fear of upsetting important others). And in the case of confirmatory factorial analysis, the fit indices were appropriate compared with the other identified versions so we preserved the initial form that resulted from exploratory factorial analyzes.

We also compared the results obtained with regard to the internal consistency and the fit indices of the confirmatory analysis in the case of several versions translated and found in the researches (Sagar & Jowett, 2010; Kahraman & Sungur, 2016; Correia, Rosado & Serpa, 2016) carried

out on the validation of the Performance Failure Appraisal Inventory and it was observed that they are similar to those obtained by us for the Romanian version.

Regarding the convergent validity, we decided that it should be carried out by investigating fear of failure relations with other constructs like anxiety, and more specifically with a situational anxiety, proceeding the suggestions made by the author of the questionnaire, Conroy, who found that fear of failure is associated with high levels of worry, anxiety, intrusive thoughts and sports anxiety; and with low levels of optimism (Conroy, Willow, & Metzler, 2002). In this way we chose the Test Anxiety Inventory (Spielberger, 1980) in order to verify the hypothesis that there is a positive relationship between fear of failure and test anxiety (and their scales). As expected, relationships between the Romanian version of Performance Failure Appraisal Inventory and test anxiety were significant and in the expected direction. The Performance Failure Appraisal Inventory demonstrated significant positive relationship with the two components of test anxiety (cognitive test anxiety and emotionality test anxiety).Thus, subjects with a high level of fear of failure (Fear of experiencing shame and embarrassment, Fear of devaluing one's self-estimate, Fear of having an uncertain future, Fear of important others losing interest, and Fear of upsetting important others) showed high levels of cognitive test anxiety and emotionality test anxiety. What can be noticed, however, is that the relationships between the five types of aversive consequences of failure and cognitive test anxiety are stronger than those with the emotionality component of test anxiety. This puts into question the fact that the items of this inventory evaluate the fear of the aversive consequences of failure by referring to the intrusive thoughts that fear of failure generates and this aspect is similar to the cognitive scale of test anxiety that measures the concern that a student faces during a test. The same aspect was mentioned by the authors of the questionnaire who stated that fear of failure was associated with high levels of anxiety, intrusive thoughts and sports anxiety; and with low levels of optimism (Conroy, Willow, & Metzler, 2002).

The same results were obtained by Wilt (2016) who investigated how competitive anxiety is associated with fear of failure. His results showed that the cognitive component of the competitive anxiety showed very strong relationships with the fear of failure, but did not support any relationship with somatic anxiety, argued by the fact that the scale of the fear of failure does not include items referring to physiological symptoms. The author explained this strong relationship between fear of failure and cognitive anxiety by the fact that subjects who are thinking about failure have more negative thoughts before the competition, which contributes to their level of cognitive anxiety.

The results obtained also revealed that the Performance Failure Appraisal Inventory presents a gender-specific discrimination power. Concerning Fear of experiencing shame and embarrassment and Fear of an uncertain future, it has been observed that male participants have much lower levels than females in terms of these aversive consequences. The existing differences between boys and girls regarding the scale of fear of having an uncertain future were not very big, but the same can't be said about the fear of experiencing shame and embarrassment. In this case, the girls obtained much higher scores than the boys. The same results were obtained by Kahraman and Sungur (2016) who identified an existing difference between girls and boys on this scale, but they did not analyse which of the subjects achieved higher scores. In the case of the other three scales, there were no significant differences between girls' and boys' scores. This results can be considered to be consistent with previous findings indicating that there is no difference between girls and boys in terms of fear of failure (Caraway et al., 2003; Conroy, Elliot, & Pincus, 2009).

In conclusion, the findings of the current study are consistent with previous research supporting the five-factor new conceptualization of fear of failure. Through the analyses which we have conducted we obtained the necessary results to support that Performance Failure Appraisal Inventory used in an educational competition context has a solid structure and internal consistency, and it can represent a useful tool to

assess the aversive consequences of experiencing failure in an educational context too and not just in sports. The use of this tool could bring great benefits to educational practice, thus encouraging school counsellors and teachers to identify the necessary measures to improve the well-being of students participating in educational competitions.

This tool can be useful both in knowing the origin of the fear of failure among students, by addressing the five aversive consequences associated with failure, and by putting it in relation with other constructs such as personality factors, achievement goals, or with the symptoms of some various pathologies such as anxiety or depression. One reason why this tool can be used in exchange for others (such as anxiety measurements) refers to the fact that knowing the origin of the fear of failure can represent a starting point in understanding the manifestations of pathologies such as anxiety. PFAI can also be used in examining the role that parents, teachers, or other people in the student environment have in the development of fear of failure in children (for example, in parent-child, teacher-students, coaches / mentors-students relationships, etc.). It can also be helpful in testing various treatments frameworks (e.g., cognitive behavioural therapy, rational-emotive therapy; Sagar et al., 2009). From a clinical point of view, by using this inventory, fear of failure can be identified, treated or prevented by discovering the wrong thinking patterns associated with failure and in this way specialists can propose some types of programs in accordance with the needs of the affected person. What is recommended for the future with regard to the study of this construct refers to its relationship with school performance. Passer (1988) draws attention to the fact that concerns about performance failure and negative social evaluation are the most prevalent sources of competitive stress and worry for youth.

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Appendix

The items for each scale of the Performance Failure Appraisal Inventory (Conroy et al., 2002), translated into Romanian

Scala *Teama de a experimenta ruşinea*	10. Atunci când nu am succes, sunt mai puţin valoros(oasă) decât atunci când reuşesc. 15. Atunci când nu am succes, acest lucru pare să mă copleşească repede. 18. Atunci când nu reuşesc, este jenant dacă alţii sunt acolo ca să vadă acest lucru. 20. Atunci când nu reuşesc, cred că toată lumea ştie că acest lucru se întâmplă. 22. Atunci când nu reuşesc, cred că acele persoane care nu aveau încredere în mine simt că aveau dreptate în privinţa mea. 24. Atunci când nu reuşesc, mă îngrijorează ce cred alţii despre mine. 25. Atunci când nu reuşesc, îmi fac griji că alţii ar putea crede că nu încerc. 16. Atunci când nu reuşesc, urăsc faptul că nu am controlul asupra rezultatului.
Scala *Teama de auto-devalorizare*	1. Atunci când nu reuşesc, se întâmplă adesea pentru că nu sunt suficient de inteligent(ă) pentru a efectua cu succes acea activitate. 4. Atunci când nu reuşesc, dau vina pe lipsa mea de abilitate. 7. Atunci când nu reuşesc, mă tem că este posibil să nu deţin suficientă capacitate/abilitate.

Scala *Teama de un viitor incert*	2. Atunci când nu reușesc, viitorul meu pare incert. 5. Atunci când nu reușesc, cred că planurile mele viitoare se vor schimba. 8. Atunci când nu reușesc, mi se perturbă „planul" ce urma. 12. Atunci când nu reușesc, nu mă îngrijorează că acest lucru va afecta planurile mele viitoare.
Scala *Teama de a pierde influența socială*	11. Atunci când nu am succes, oamenii sunt mai puțin interesați de mine. 13. Atunci când nu am succes, oamenii par să vrea să mă ajute mai puțin. 17. Atunci când nu am succes, oamenii tind să mă lase singur(ă). 21. Atunci când nu am succes, unele persoane nu mai sunt interesate de mine deloc. 23. Atunci când nu am succes, valoarea mea scade pentru unii oameni.
Scala *Teama de a dezamăgi persoanele apropiate*	3. Atunci când nu reușesc, acest lucru îi supără pe ceilalți. 6. Atunci când nu reușesc, mă aștept să fiu criticat(ă) de persoanele importante. 9. Atunci când nu reușesc, pierd încrederea unor oameni care sunt importanți pentru mine. 14. Atunci când nu reușesc, persoanele importante nu sunt fericite. 19. Atunci când nu reușesc, persoanele importante sunt dezamăgite.